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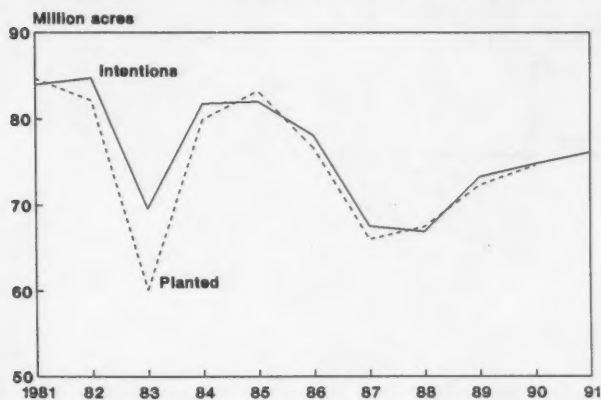
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Feed

Situation and Outlook Report

Corn: Planting Intentions and Plantings



Contents

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Summary	3
Feed Grain Supply and Use	4
Corn	5
Sorghum	7
Barley	7
Oats	9
Hay	11
Feed Demand	12
Food Seed and Industrial Use of Corn	13
Transportation Update	15
World Coarse Grain Outlook	19
Special Article	19
Forecasting Season-Average Corn Prices Using	
Current Futures Prices	24
List of Tables	51

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Summary

Larger U.S. Coarse Grain Production Projected to Push World Output Up.

Global output of coarse grains in 1991/92 is projected to rise 6 million metric tons to 831 million, due to increased U.S. production. Foreign production is projected to drop almost 4 million tons from the expected 1990/91 record, led by declines in the USSR, China, and Canada. With forecast carryin stocks about the same as a year earlier, total global 1991/92 coarse grain supply is projected to increase about 1 percent.

World coarse grain trade in 1991/92 is projected to rise slightly from 1990/91, which, at 83 million tons, is forecast to be the lowest in 3 years. Most of the gain in trade is because of larger imports by the USSR and Korea. World 1991/92 ending stocks of coarse grains are projected to increase about 3 million tons because of larger U.S. stocks.

U.S. 1991/92 feed grain supply is projected at 285 million tons, up 8 million from 1990/91. Production for 1991/92 is projected up almost 10 million tons to 240 million, but beginning stocks are forecast down 2 million tons. Use in 1991/92 is projected to rise about 3 million tons to 236 million, with larger domestic use and exports. However, use is expected to be less than production, leading to a rise in ending stocks.

Corn supply for 1991/92 is projected at almost 9.7 billion bushels, 4 percent above 1990/91. Corn production in 1991/92, at nearly 8.3 billion bushels, is projected up 4 percent, and carryin stocks are forecast to rise 4 percent. Use for 1991/92 is projected at 8.1 billion bushels, a 180-million increase over the 1990/91 level, with larger feed and residual disappearance accounting for most of the gain. Use is projected to fall short of production, leading to increased ending stocks and lower average prices in 1991/92.

The sorghum supply for 1991/92 is projected at 758 million bushels, 4 percent below 1990/91. While 1991 production, at 640 million bushels, is projected up 69 million from 1990, a forecast 102-million-bushel drop in beginning stocks will be more than offsetting. Sorghum use for 1991/92 is projected at 635 million bushels, down 6 percent from the 1990/91 forecast. Use is projected to about match production, resulting in little change in stocks. Sorghum prices are expected to follow corn prices down in 1991/92, but because of relatively tight supplies, they likely will average a little higher than normal relative to corn prices.

In March, barley growers indicated plans to plant just over 8.7 million acres in 1991, up about 6 percent from last year. Production is projected to be only marginally above 1990, and, when combined with lower forecast beginning stocks, result in a 5-percent drop in supply from 1990/91. Total use for 1991/92 is projected at 435 million bushels, a decline from a year earlier equal in magnitude to that in supply, leaving barley ending stocks unchanged from 1990/91. Farm prices are projected to average \$1.80-\$2.20 a bushel in 1991/92, compared with a preliminary \$2.13 for 1990/91.

Only 300 million bushels of oats are projected to be harvested in 1991. March Prospective Plantings reported that producers intended to harvest for grain about 10 percent less area in 1991 than the year before, which would be the lowest on record. Slightly higher projected imports and carryin stocks will not be sufficient to offset the expected decline in production, so supplies are projected to be about 50 million bushels below 1990/91.

Total disappearance of oats in 1991/92 is projected around 400 million bushels, 20 million less than forecast for a year earlier. However, total use is still expected to exceed production plus imports, leading to a projected decline of around 30 million bushels in 1991/92 ending stocks. Farm prices for 1991/92 are projected to average \$1.00-\$1.40 per bushel, compared with a preliminary \$1.13 in 1990/91.

In March, farmers reported intentions to harvest hay from 61.4 million acres in 1991, down about 150,000 acres from 1990. Beginning stocks for 1991/92 were 27.1 million short tons, identical to 1990 carryin stocks. In early May, pasture and range conditions in most of the country were equal to, or better, than a year earlier. However, conditions were significantly below a year earlier in Kansas, Montana, Oklahoma, and Texas, States that accounted for 11 percent of the area harvested for alfalfa hay in 1990. For States that harvested 61 percent of the alfalfa area in 1990, the pasture and range conditions in May averaged 78.8 percent compared with 70.4 percent in 1990.

With grain exports running well below last year, demand for rail and barge transportation has diminished from a year earlier. The return of normal navigation conditions on the Mississippi River system has allowed barge shipments to increase seasonally. Rail and barge equipment should be adequate for wheat and coarse grain harvests.

Although fuel prices have fallen below April 1990 levels, operating costs for all transportation modes are higher. However, competitive pressures have limited rail rate increases and held barge rates down.

Feed Grain Supply and Use

Feed Grain Supply Projected Up 3 Percent For 1991/92

A projected increase in production of 10 million tons will more than offset a small decline in expected beginning stocks.

The 1991/92 supply of feed grains is projected at 285 million metric tons, almost 8 million tons (3 percent) larger than the 1990/91 supply. Production is projected up almost 10 million tons (4 percent) from 1990/91, led by gains in corn and sorghum. However, beginning stocks for 1991/92, forecast to total 43.6 million tons, would be 1.9 million tons (4 percent) less than year-earlier stocks. Imports are forecast at 1.3 million tons, about the same as in 1990/91.

Planting Intentions Down Slightly

In early March, farmers reported intentions to plant 105.5 million acres to feed grains, slightly less than March 1990's planting intentions, but 2.2 million acres above 1990's actual plantings of 103.3 million acres. Corn's share of the total feed grain supply likely will increase in 1991/92. Planting intentions for corn are 1.3 million acres above 1990 intentions and almost 2 million acres above actual area planted in 1990. In contrast, planting intentions for the combined area for sorghum and barley, and oats intended for harvest as grain, were 1.5 million acres less than year-earlier intentions and only 240,000 more than actually planted in 1990.

Farmers Enroll 73.5 Percent of Feed Grain Base In Programs

The preliminary results of the 1991 program signup shows that farmers enrolled 84.7 million acres, or 73.5 percent of the effective feed grain base of 115.3 million acres. Participation this year is up slightly from last year's 72.9 percent enrollment of 85.6 million acres of an effective base of 117.4 million acres.

With the lower Acreage Reduction Program (ARP) requirement this year, 7.5 percent for corn, sorghum, and barley compared with 10 percent last year, the area idled in the Acreage Conservation Reserve (ACR) is 6.1 million acres compared with 8.1 million last year. In

addition, 6 million acres were enrolled under the 0/92 provisions this year as against 7.9 million acres last year. The new flexibility provisions likely account for some decrease in the acreage idled in 0/92, plus the projected (guaranteed) deficiency payment rate is about a third less for corn and grain sorghum.

The new Farm Bill includes the option to plant permitted crops, other than the program crop, on up to 25 percent of any participating program crop acreage base with no reduction in crop base. This is the flex acreage. The first 15 percent is called normal flex acreage (NFA) and the remaining 10 percent is called optional flex acreage (OFA). Producers do not receive deficiency payments on the NFA regardless of whether it is planted to the program crop or flexed to a permitted crop. Deficiency payments are made on the OFA only if planted to the program crop. The base acreage intended to be flexed out of feed grain acreage totaled 3.8 million acres, of which 2.9 million were intended to be flexed to soybeans, 2 million to minor oilseeds, and .5 million to other non-program crops.

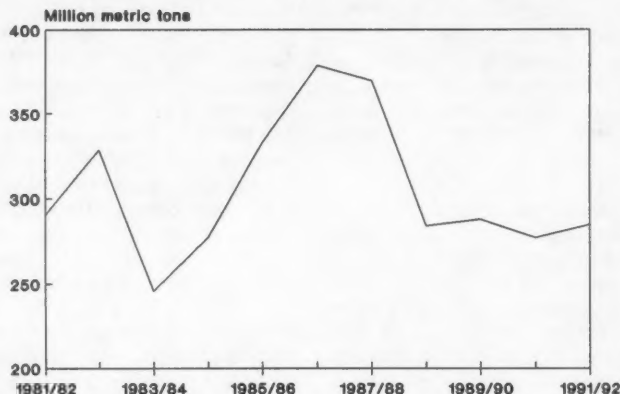
Actual planting of feed grains, especially corn, likely will depend largely on

planting weather. When the program enrollment period closed April 26, corn, sorghum, barley, and oats plantings were about 16 percent, 19 percent, 68 percent, and 71 percent completed, respectively. Since those with the smallest plantings by the end of signup, corn and sorghum, account for about 83 percent of the area intended for feed grains in the March planting report, a lot of changes can occur depending on the weather for the balance of the planting season. If weather is favorable for corn plantings, most farmers will likely decide to plant their corn NFA to corn rather than to another crop. The expected market price of corn is still favorable compared with other crops. If this happens, corn plantings could turn out to be at or above the reported intentions of 76.1 million acres. However, if planting of corn over a significant area is delayed by weather, corn plantings likely will be less than 76.1 million acres.

Corn will have a greater impact on the average yield per acre of feed grains harvested this year. Corn likely will account for over 72 percent of the feed grain area harvested this year compared with 70.5 percent in 1990. The average yield of corn last year was 3.01 metric tons per acre harvested compared with

Figure 1

Total Feed Grain Supply 1981/82-1991/92



a weighted average of 1.28 metric tons per acre for sorghum, barley, and oats.

Feed Grain Use Projected to Rise 2.7 Million Tons

Feed grain use is projected at 236.1 million tons for 1991/92, 2.7 million (1 percent) above forecast use for 1990/91 of 233.4 million tons. Domestic use is

projected to rise 1.4 million tons to 184.5 million, with the increase nearly evenly distributed between feed and residual disappearance and food, seed, and industrial use (FSI). Exports are projected at 51.6 million tons, 1.2 million tons above the 1990/91 forecast.

The projected increase in use falls 5.2 million tons short of offsetting the gain in total feed grain supply, thus leading

to an increase in projected ending stocks to 48.8 million tons. The ending stock-to-use ratio would rise from 18.7, forecast for 1990/91, to 20.7 for 1991/92. Increasing stocks are expected to result in lower average farm prices for feed grains in 1991/92. The weighted average price for feed grains is expected to be \$76.40 - \$92.55 per metric ton compared with \$88.64 - \$92.25 forecast for 1990/91.

Corn Production and Supplies Projected Up Over 4 Percent in 1991/92

Total corn use in the 1990/91 marketing year is expected to decline 3 percent from 1989/90; but domestic use is projected to rise.

On May 9, USDA released its first projection of the supply and use for the 1991/92 crop. The projected corn crop is based on the March Prospective Plantings and trend yield. USDA's first survey-based forecast of the 1991 corn crop will be released on August 12th. In 1991, farmers were surveyed twice on the expected number of acres to be planted. A late January survey indicated farmers intended to plant 77.5 million acres of corn, up 5 percent from 1990. During the regular planting intentions survey in early March 1991, farmers stated they intended to plant 76.1 million acres of corn, up nearly 3 percent from actual 1990 plantings. Among the five States with the most corn acreage, the largest, Iowa, was up nearly 2 percent and the second, Illinois, was up 3 percent from last year.

Historically there has been a close correlation between the March prospective plantings and actual plantings of corn. However, this year another factor has been introduced—namely, the new farm bill's flex provisions. While these provisions provide farmers with more choice on plantings than under the old program, they also mean that farmers will be more likely to change their planting intentions in response to changes in market and weather conditions. Since farmers will not receive deficiency payments on the 15 percent NFA, relative costs and returns based on market prices and weather will determine what they

plant on these flex acres. The farmers can plant any crop on flex acres, except fruits and vegetables and those designated by the Secretary, without suffering a reduction in the crop base.

Even allowing for potential shifts in plantings on flex acres, the March Prospective Plantings still is the best estimate of 1991 corn plantings available. The larger 1991 corn plantings and trend yields imply a 1991 corn crop of almost 8.3 billion bushels, up 4 per-

cent from 1990. Forecast carryin stocks are up 4 percent from 1990's 1.3 billion bushels. Thus, 1991/92 corn supplies are projected up 4 percent or almost 400 million bushels from 1990.

With additional supplies expected relative to last year, prices will likely average lower, promoting corn use. Domestic use in 1991/92 is projected to increase 2 percent from 1990/91. Corn used for FSI products is not expected to grow as sharply as in prior years. Corn

Table 1--Corn supply, disappearance, and stocks, December-February

Item	1989/90	1990/91
Million bushels		
Supply:		
Beginning stocks, Dec. 1:	7,082.1	6,940.3
CCC	628.2	205.9
FOR	468.4	381.1
Loan	492.7	435.3
Free	5,492.8	5,918.0
Imports (Dec.-Feb.)	0.4	0.3
Total	7,082.5	6,940.6
Disappearance:		
Food, seed, & industrial	291.0	305.0
Exports	681.8	470.7
Feed and residual	1,297.3	1,376.2
Total	2,270.1	2,151.9
Ending stocks Mar. 1:	4,812.4	4,788.7
CCC	537.2	195.6
FOR	417.0	182.6
Loan	783.9	830.0
Free	3,074.3	3,580.5

Totals may not add because of rounding.

sweeteners have probably gained most of their potential market share and ethanol must compete with petroleum-based oxygenates, and new regulations under the Clean Air Act of 1990 do not go into force until October 1992. Feed and residual use in 1991/92 is also projected up 2 percent based on continued livestock expansion and reduced supplies of the other feed grains and wheat.

Corn exports in 1991/92 are projected 3 percent above the forecast relatively low level for 1990/91. Despite the projected increases in domestic use and exports, total use is expected to be less than production, leading to slightly larger than 200-million-bushel rise in stocks by the end of 1991/92.

1991 Program Participation Declined Over 2 Percent

The preliminary results of the sign-up in the 1991 corn program shows farmers enrolled 63 million acres of corn, 75.9 percent of the effective corn base of 83 million acres. In 1990, 64.6 million acres were enrolled—78.3 percent of base. Thus, the preliminary 1991 sign-up indicates 20 million acres of base are not enrolled this year, 2.0 million more than the 18.0 million acres of corn base outside the program last year. Corn enrolled base to be idled under ACR and 0/92 this year totals 7.2 million acres, 4.7 million acres in the ACR and 2.5 million in the 0/92 option. In addition, the sign-up report indicated a net of 2.6 million acres of normal and optional flex acres planted to soybeans, minor oilseeds, and other crops. This would leave about 53.2 million acres of enrolled base to be planted in corn. In

1990, 54.3 million acres of enrolled base were planted.

Sharp Drop In Exports; Second-Quarter 1990/91 Use Declines.

The total corn use December 1990 through February 1991 was down 5 percent from the similar period in 1989/90. While domestic use was up 6 percent from a year earlier, exports of corn were down 31 percent from the 682 million bushels in the similar period in 1989/90. During second-quarter 1990/91, FSI use is estimated to have been up nearly 5 percent from last year, pushed up by wet-milling use of corn for sweeteners and fuel alcohol. Feed and residual use was up 6 percent from last year's 1.3 billion bushels.

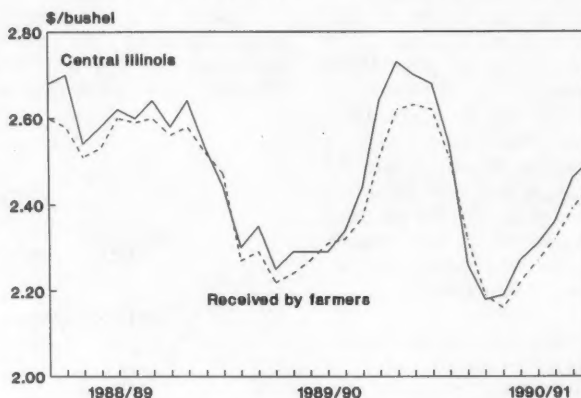
1990/91 Domestic Use To Rise; Total Use Down

Domestic corn use in 1990/91 is forecast to increase nearly 8 percent from 1989/90. The biggest increase is expected in feed and residual use, with

a nearly 9 percent increase from last year's 4.45 billion bushels. In 1990/91, FSI use is forecast to increase 3 percent from a year earlier. In 1990/91, corn exports are expected to be down 28 percent from the 2.4 billion bushels exported in 1989/90. Thus, total use is forecast to be down 3 percent from 1989/90's 8.1 billion bushels. Carryout stocks are forecast up 4 percent, but still remain relatively low.

Corn prices received by farmers declined from September 1990 to their harvest lows in November, and then began increasing. The mid-April price of \$2.44 per bushel is expected to be the peak price, if weather favors a large crop and use continues at expected levels. Corn prices, near term and new crop, will be sensitive to weather conditions through pollination in July. Threat of drought or hot weather in coming months would send prices higher, but if growing conditions are favorable, prices are expected to start slipping seasonally toward the harvest lows in the fall.

Figure 2
Monthly Average Corn Prices



Sorghum Production Projected 12 Percent Larger In 1991

A forecast decline in beginning stocks will more than offset the projected rise in production, leading to a 4 percent drop in supply for 1991/92.

In March, farmers reported intentions to plant 11.1 million acres to sorghum, 3.5 percent less than their intentions a year earlier, but up 6 percent from the area planted in 1990. Assuming farmers carry through with their intentions, average yields would result in 1991 production of around 640 million bushels, up 12 percent from last year. However, carryin stocks are forecast to be 102 million bushels less than for 1990/91, resulting in a total supply of 758 million bushels, down 4 percent from 1990/91.

Total use of grain sorghum in 1991/92 is projected at 635 million bushels, down 6 percent from 1990/91. Exports and FSI use are projected to show little change. However, with the tighter supplies, feed and residual disappearance in 1991/92 is projected to drop 9 percent from the 450 million bushels forecast for 1990/91.

Projected use for 1991/92 is slightly less than expected production resulting in a slight increase in ending stocks. However, at 123 million bushels, projected ending stocks will still be tight. Lower corn prices are expected to pull sorghum prices down in 1991/92, although the average price received by farmers likely will average a little higher than normal relative to corn.

Stocks Tighten In 1990/91

The total supply of sorghum in 1990/91 is down 25 percent from 1989/90. The decline was the result of both lower carryin stocks and production. In 1990, grain sorghum yield was up nearly 14 percent from 1989 but harvested area was down 18 percent, resulting in production of 571 million bushels, 7 percent less than 1989 production. The carryin stock in 1990/91 totaled 220 million bushels, 50 percent of the previous year's beginning stocks. Moreover, 175 million bushels of the beginning stocks were tied up in FOR and CCC stocks.

Grain sorghum use for September - February 1990/91 totaled 458.7 million bushels, 15 percent less than year-earlier disappearance of 541.3 million bushels. Domestic disappearance was down 8 percent and exports were off 31 percent. Stocks in all positions totaled 332.5 million bushels March 1 this year, 30 percent below stocks last March of 513.6 million bushels. Disappearance during the second half of this year is forecast at 214 million bushels compared with 294 million for the comparable period last year. This would bring use for the entire year to 673 million bushels, 210 million bushels of exports and domestic disappearance of 463 million bushels. Use would exceed

the 1990 production of 571 million bushels leaving ending stocks of 118 million bushels, 102 million bushels less than year-earlier ending stocks and the lowest ending stocks since 1976/77.

Prices received by farmers for sorghum have shown some tendency to strengthen relative to corn this year. The price received by farmers for sorghum averaged 91.6 percent of the price received for corn during September-February this year compared with 89 percent for the same period last year. By mid April this ratio had increased to 93 percent. However, new crop sales from Southern Texas could ease sorghum prices relative to corn in late June and July.

CCC continues to reduce its inventory of grain sorghum. On May 1, 113.8 million bushels were in inventory, down from 162.5 million on September 1, 1990. By the end of August, CCC is expected to reduce its inventory to 50 million bushels. Farmers are also reducing FOR stocks. On May 1, they totaled 3.2 million bushels, a decline of 9.1 million from September 1. About 2.1 million bushels were redeemed with generic certificates or cash, and the balance matured and were delivered to CCC.

Barley Supply and Use Projected To Drop in 1991/92

Lower forecast carryin stocks more than offset a small gain in projected production to reduce supply 5 percent for 1991/92. Use is projected to decline about the same as supply, leaving ending stocks about unchanged.

Barley Planting Intentions Increase for 1991

USDA's March Prospective Plantings report indicated a barley planted area of 8.71 million acres for 1991 up about 6

percent from the actual 8.21 million acres planted last year. In contrast to the 1990 crop, the biggest changes in intended planted area are among the largest barley producers. Farmers in North Dakota alone intend to plant

about one-third of the nation's total and 200,000 more than in 1990, registering the largest absolute year-to-year gain of any of the States.

Preliminary sign-up for the 1991 barley program showed over 8.6 million acres enrolled out of an effective base of 11.5 million, bringing participation to almost 75 percent. Participation was 69 percent in 1990 and 67 percent in 1989. The barley ARP requirement for the 1991 crop is set at 7.5 percent. The sign up report showed 0.6 million designated as idled under the Acreage Reduction Provisions and 1.4 million acres either idled or planted to other minor oilseed crops under the 0/92 provisions.

1991/92 Barley Crop Projected Up Slightly

The 1991 barley crop is projected at 425 million bushels, up only slightly from the 1990 crop. However, barley supplies are forecast down 5 percent at only 562 million bushels as a result of lower beginning stocks. Carryin stocks for 1991/92 are forecast at 127 million bushels, down 34 million from a year earlier.

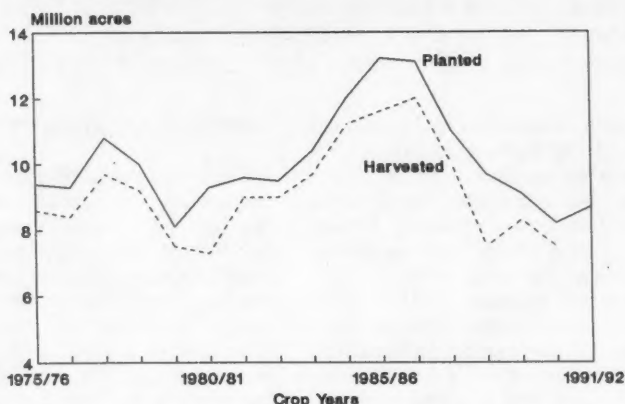
With tighter supplies, feed and residual use is projected to be down about 25 million bushels, about 12 percent, at 175 million bushels. FSI use is expected to be largely unchanged also at 175 million bushels. Once again, exports are projected to remain steady at 85 million bushels. As a result, total use is projected at 435 million bushels, down 28 million from forecast 1990/91. Use is expected to approximate production plus imports, leaving stocks unchanged at the end of 1991/92. The average farm price for the 1991/92 crop is projected at \$1.80 to \$2.20 per bushel.

Use Data On Track For 1990/91

Data for the first three quarters of the June-May marketing year for barley indicate feed and residual use of about 175 million bushels. This implies a fourth quarter use of 25 million during March-May 1991, the smallest quarterly use during the year, but about the same as in the last quarter of 1989/90.

FSI use for 1990/91 is forecast at 178 million bushels, or about the same as in 1989/90. Through the first three quarters of the crop year FSI was estimated at 125 million bushels, or about equal to a year earlier.

Figure 3
U.S. Barley Area



Exports during the first ten months of the crop year totaled 77.0 million bushels, up 10 million from the same period last year. However, inspections for export from April through mid May this year were less than 200,000 bushels compared with 12.5 million last year, and outstanding export sales in mid May were 800,000 bushels this year compared with 6.7 million a year earlier. Saudi Arabia continues to be our largest barley purchaser by far. Other large purchasers include Jordan, Algeria, Israel, and Mexico.

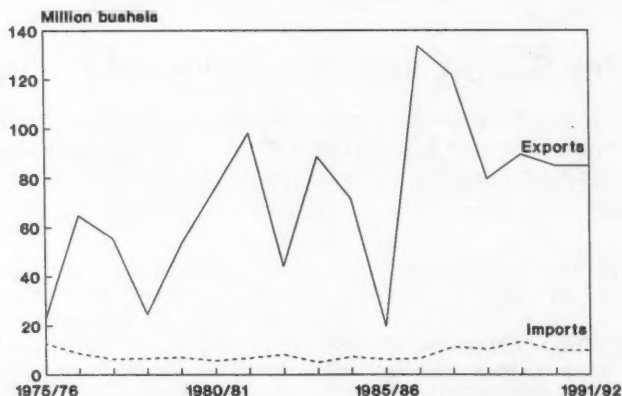
As of early April 1991, exports and outstanding sales totaled 79 million bushels, compared to 87.0 million at the same time in 1989/90. Saudi Arabia continues to be our largest barley purchaser by far. Other large purchasers

include Jordan, Algeria, Israel, and Mexico.

Ending stocks for the 1990/91 crop year are forecast at 127 million bushels, down from 161 million a year earlier. The last time ending stocks were this low was 1976/77. This results in an estimated stocks-to-use ratio of only 27 percent. In 1974/75, when ending inventories amounted to only 92 million bushels the stocks-to-use ratio was record low at only 25 percent. March 1, 1991, barley stocks were reported at 210 million bushels, compared to 306 million bushels on December 1, 1990.

The preliminary marketing-year weighted-average price for all barley for the 1990/91 crop year is \$2.13 per bushel, down from \$2.42 in 1989/90.

Figure 4
U.S. Barley Trade, Grain Only



Through April 1991, feed barley prices in Duluth averaged \$1.96 per bushel, well below the average of a year earlier. Following the 1988 crop disaster in the

Northern Plains the spread between malting barley and feed barley peaked during the summer at over \$2.00 per bushel. Since that time the gap has nar-

rowed as the price for malting barley has fallen more than the feed barley price. This is due primarily to increased supplies of malting barley.

Oats Supply and Use Projected Lower for 1991/92

Forecast carryin stocks about unchanged and production projected at 300 million bushels, down 57 million, accounting for the lower supply.

Oats Planting Intentions Down in 1991/92

The March Prospective Plantings reported oats producers intended to seed and harvest fewer acres in 1991/92, with only 9.5 million acres planted in 1991/92, compared to the actual planting area of 10.4 million acres in 1990/91. Likewise for the harvested area, forecast at only 5.4 million acres. This harvested area forecast is 161,000 acres below the 1988 harvested area when acreage abandonment increased because of the drought.

Of the largest oats States in terms of harvested area in 1990/91 (including Iowa, South Dakota, Texas, Minnesota, and North Dakota) none showed an expansion in either planted or harvested area. Texas is expected to hold its area constant.

The preliminary signup data for 1991 shows participation in the oats program soared to over 38 percent, up sharply from the 10 percent last year. Enrollment approached 2.8 million acres out of an effective base of 7.3 million. The oats ARP is 0 for the year. Under the 0/92 provisions, 542,000 acres are designated as idled or planted to other minor oilseeds. Also, the signup report showed 0.3 million acres of oats flex acres planted to other crops.

1991/92 Oats Supplies Continue Downward

The total supply of oats in 1991/92 is projected at 529 million bushels, down from 579 million in 1990/91. The supply is down primarily because of a projected drop in production. The crop, is projected at 300 million bushels, compared to 357 million in 1990/91.

Figure 5
U.S. Oats Area

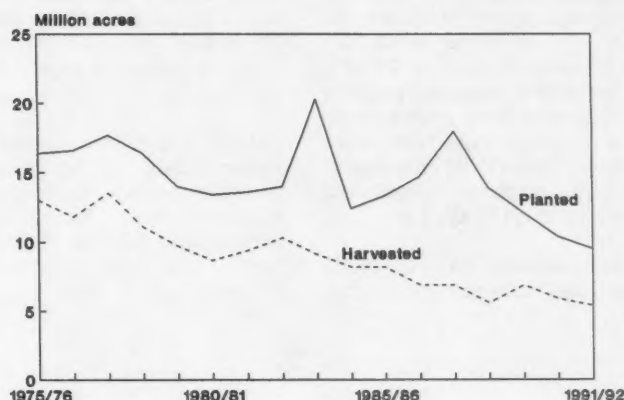
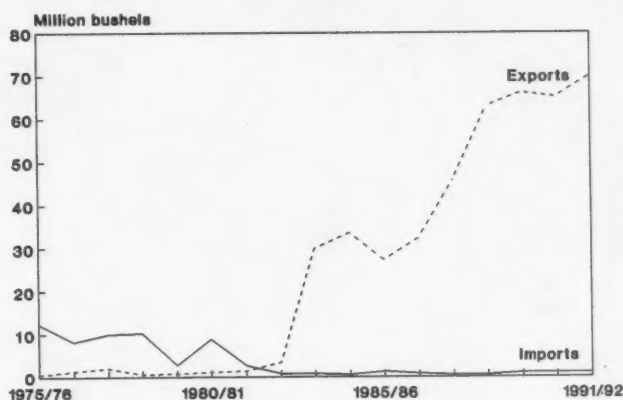


Figure 6
U.S. Oats Trade, Grain Only



Since 1950/51 the only smaller crop was the disastrous drought stricken crop of 1988/89, although production has been trending down throughout the 1980's. Oats production during the 1980's averaged about 140 million bushels higher than is projected for this year.

Oats use at 401 million bushels for the 1991/92 crop year, is projected to exceed production and imports by around 30 million bushels. However, forecast 1991/92 use is bolstered by relatively large feed and residual use, forecast at 275 million bushels. Food, seed, and industrial use is projected up 5 million bushels to a record 125 million.

Ending stocks are projected to fall to only 128 million bushels, down 31 million from the forecast 1990/91 carryout. This brings oats ending stocks back down to about the level of 1986/87. This tightening of the market indicates some degree of price strengthening, with weighted-average farm prices forecast for the 1991/92 crop year at \$1.00-\$1.40 per bushel, compared to \$1.13 per bushel in 1990/91.

Top soil conditions across the North Central Plains States appear to be good

through the middle of May. North Dakota, South Dakota, and Minnesota report generally adequate supplies. In many areas, however, sub-surface moisture supplies have not yet recovered from drought conditions in 1988 and the following years. However, timely rain during the growing period is still needed for the crop to prosper.

Oats Uses Gain

Oats feed and residual use through the first three quarters of the June-May 1990/91 crop year was 250 million bushels, compared to only about 230 million bushels a year earlier. Feed and residual use was unusually heavy during the June-August period this year. With feed and residual use forecast at 300 million bushels for the entire year, about 50 million is expected in the fourth quarter.

FSI use in 1990/91 is forecast at 120 million bushels. During the first nine months of the crop year estimated use was over 81 million bushels, implying fourth quarter FSI use of 39 million bushels. This matches FSI use during the same quarter of 1989/90.

Oats exports have been small for years. It is forecast that this year's exports will about match the 1-million-bushel estimate for 1989/90. During the June-February period about 0.6 million bushels were shipped.

Oats ending stocks are forecast for 1990/91 to reach only 159 million bushels, slightly larger than at the end of the year. However, this growth, although limited, is in contrast to a downward trend noted during most of the 1980's.

The preliminary marketing-year weighted-average oats price for 1990/91 is \$1.13 per bushel, compared to \$1.49 in 1989/90. Through the first 11 months of the crop year, the ratio of oats to corn prices averaged 0.49, down from about 0.58 a year earlier. The estimated feed value of oats compared to corn (in energy terms) is about 65 percent. However, this assumes 38-pounds per bushel oats, and many feed oats are lighter than this.

Hay

Hay Stocks Remain Steady; Disappearance Rises For 1990/91

Hay disappearance for the May-April 1990/91 hay year totaled 147 million tons, 8 percent above year-earlier use. The number of roughage-consuming animals and average prices received by farmers for all hay were about the same.

Hay stocks on farms totaled 27.1 million tons on May 1, 1991, about the same as a year earlier. However, they are far above the stocks following the drought-reduced crop of 1988. Hay disappearance during the December 1, 1990-May 1, 1991 period totaled 77.9 million tons. This is almost 4 million tons above the same period a year earlier. For the entire 1990/91 May-April hay year disappearance totaled 147.0 million tons, up significantly from 135.9 million tons from 1989/90.

The number of roughage-consuming animal units (RCAU's) for the September-August 1990/91 feed year is forecast at 75.8 million units, up slightly from the revised 75.5 million for 1989/90. As was the case last year, about 70 percent of the total RCAU's were beef cattle other than those on feed. In 1990/91 the number of these cattle is estimated at over 53 million head, up slightly from the year before.

Hay Prospects for 1991/92; Some Areas Remain Dry

The USDA Prospective Plantings report in March indicated a continued downward trend for the harvested area for hay. For 1991, the harvested area is forecast at 61.4 million acres, down about 150,000 from 1990, and almost 2 million below 1989's 63.3 million.

In the May Crop Production report, 1991 pasture and range feed conditions showed improvement over 1990. This year's overall rating of 79 percent is 4 percentage points better than the same rating for the 1990 crop. Ratings of 80 percent and above are considered good to excellent.

North Dakota pasture and feed conditions are still reeling from the effects of a prolonged period of below normal rainfall. While conditions are rated at only 53 percent, this is up substantially from the 38 percent in 1990, but still below the 1980-1989 average of 66 percent. In general all states along the Mississippi River and eastward had range and pasture conditions in the good-to-

excellent range. However, conditions were significantly below a year earlier in Kansas, Montana, Oklahoma, and Texas, States which accounted for 11 percent of the area harvested for alfalfa hay in 1990.

Alfalfa accounts for over half of all hay production. These range and pasture conditions for some of the major alfalfa-producing states provide an early-season indication of the first cuttings. Nebraska conditions are rated at 77 percent, up from 61 percent in 1990; Kansas rated at 78 percent compared to 85 a year ago; and Wisconsin is rated in the good to excellent category at 85 percent, up from 69 last year.

Hay production for the 1991 year, assuming the harvested acres in the Prospective Plantings report and the average yield over the last 7 years (disregarding the high and low) is projected at 148 million tons. With the reported May 1, 1991 carryin stocks of 27.1 million tons, supplies would exceed 175 million tons, an increase of about 1 million tons from 1990.

Feed Demand

Feed and Residual Use of Grains To Increase

Feed use in 1990/91 by the hog sector is likely to be above last year because of the 2-percent larger pig crop in September-November 1990 and the 3-percent increase in December 1990-February 1991.

Feed and residual use of the four feed grains (on a mixed-crop year basis) in 1991/92 is projected up slightly from 1990/91. In 1990/91, feed and residual use of the four feed grains (mixed crop year basis) plus wheat (on a September-August basis) is expected to be up 8 percent from the 142 million metric tons used in 1989/90. Slightly lower prices for grains plus an increase in grain consuming animal units has pushed up feed use.

Feed and residual use of corn for September 1990 through February 1991 was up 8 percent from the same period in 1989/90, and was nearly 610 million bushels more than in 1988/89. The gains were largest in the September-November quarter, 9 percent above 1989/90, while December 1989 through February 1990 quarter showed a 6 percent gain.

During January-March 1991, the number of dairy cows averaged 23,000 head less than a year ago. Milk per cow during the quarter was up 2 percent, resulting in a 2 percent increase in production. On April 1, producers reported feeding 17.6 pounds of concentrates per cow, down from 18.1 pounds last year. Milk prices in September 1990 through April 1991 have been much below a year-earlier, resulting in lower milk-feed ratios and lower pounds of concentrates fed. However, better availability of higher quality hay partially offset less concentrates. Alfalfa hay prices have been high but below last year during the September 1990-April 1991 period.

Dairy cow slaughter in January-March 1991 was 2 percent above a year ago as lower milk prices and large numbers of replacement heifers encouraged producers to sell the least productive cows. This resumption in the decline of cow numbers implies a lower demand for dairy feed in the remainder of the 1990/91 feed year.

The number of cattle on feed continues to be above a year earlier implying continued increased feed demand. On April 1, 1991, the number of cattle and calves on feed in the 13 quarterly reporting States were up 8 percent from a year ago. Numbers of cattle on feed January 1 in these same States were up 10 percent from the previous year.

Rates of gain for steers marketed in February (the latest available) were down from last year and steers and heifers were fed more days because the cattle were lighter entering the feedlot. The feedlot data suggest steers were marketed lighter in January and February than a year ago. Federally-inspected-slaughter data on average weights of steers are only down 1 pound.

Feed use by the hog sector will be above last year because of the 2-percent larger pig crop in September-November 1990 and the 3-percent increase in December 1990-February 1991. If producers carry through with their intentions to increase number of sows farrowing, as reported in the March survey, feed demand will continue to increase in 1991/92. Prices received by farmers for all hogs in January-March 1991 were

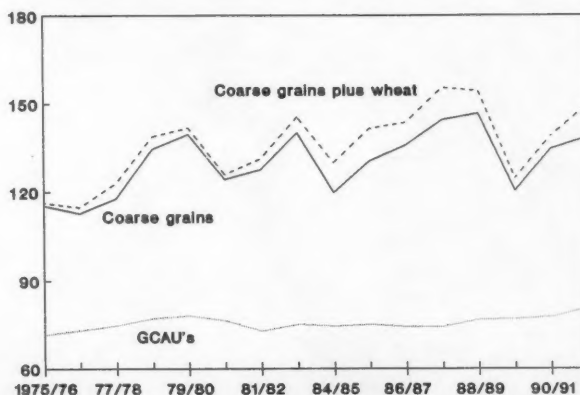
above the year-earlier prices and should encourage producers to carry through with reported intentions. Reported prices were down slightly in April but were within the first-quarter range.

The poultry sector is expected to continue needing additional feed relative to last year. The demand for layer feed in 1990/91 will be up from last year, driven by increased numbers of broiler breeder hens. The number of table egg layers in March was below last year so feed demand by this sector is projected off slightly, but table egg layer accounts for 84 percent of the laying flock. However total of all layers was equal to last year. Feed use by the broiler sector will be up from last year.

Weaker prices for turkey and large carry-in resulted in a slowing in numbers of poulters placed for slaughter in the U.S. Turkey placements in March were 7 percent below last year, resulting in cumulative total placements for September 1990-March 1991 of 2 percent above a year earlier. Thus feed demand by the turkey sector will probably be up only slightly in 1990/91. If producers continue to trim placements, feed demand in the remainder of the year will likely be down.

Figure 7

Feed and Residual for Coarse Grains



Food, Seed, and Industrial Use of Corn

FSI Use of Corn Projected To Rise 2 Percent In 1991/92

The use of corn by the wet milling industry has increased in 1990/91 from 1989/90, and is projected to further expand in 1991/92.

In the 1991/92 marketing year, FSI use of corn is expected to total 1,360 million bushels of corn, up 2 percent from 1990/91. The dry milling portion of FSI will likely increase 1 percent, about in line with population growth. This includes dry-milled alcohol production both for beverage purposes and fuel use. Recent industry studies suggest wet-mill alcohol plants are less costly on average than dry-mill alcohol plants. Thus, wet-milled alcohol production would be expected to increase faster.

Provisions of the Clean Air Act Amendments of 1990 will require gasoline sold in many areas of the U.S. to contain oxygen. Ethanol is expected to gain some share of that market beginning in late 1992. Ethanol's penetration into the oxygenated fuels market will depend on the relative prices and availability of competing oxygenates like MTBE (methyl tertiary butyl ether). Corn sweetener and starch production in 1991/92 is projected to grow nearly 3 percent above 1990/91.

Corn sweetener production in 1990/91 is expected to be 3 to 4 percent above 1989/90. High fructose corn syrup (HFCS) will likely be up 3 percent from last year. During September-Novem-

ber, production was up nearly 4 percent because of strong sugar prices and increased shipments of soft drinks to the Desert Storm troops. HFCS production in December 1990 through February 1991 was up 3 percent from the year earlier but has been off thus far in the third quarter. Glucose and dextrose production in first half 1990/91 was up 7 percent from last year, again probably a response to strong sugar prices. Early

third quarter production was down from a year ago, possibly in response to a decline in sugar prices.

Starch production in September 1990 through February 1991 was nearly 8 percent larger than the same period of a year earlier. Usually, starch production is down when the economy declines but not in this period. Additional paper and box board probably was needed to move

Figure 8
Wet Milling Corn Cost

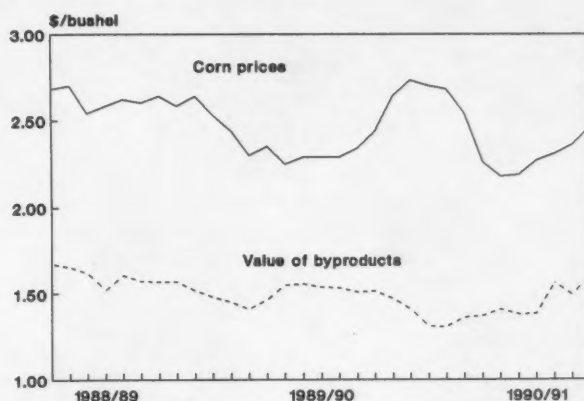


Table 2--Corn: Food, seed, and industrial use 1/

Year beginning September 1	Wet-milled products				Dry-milled alcohol	Dry-milled and alkaline cooked products	Seed	Total
	HFCS	Glucose and dextrose	Starch	Alcohol				
Million bushels								
1975	45	162	116	5	20	154	20	522
1976	62	164	116	10	15	155	20	542
1977	80	170	124	10	20	158	20	582
1978	105	170	124	15	20	155	20	609
1979	127	170	120	25	20	158	20	640
1980	165	183	120	35	35	160	20	718
1981	185	183	130	83	35	162	19	797
1982	215	188	127	130	50	170	15	895
1983	256	189	147	150	50	164	19	975
1984	310	187	143	170	100	160	21	1,091
1985	328	188	152	185	127	161	19	1,160
1986	339	185	155	200	135	161	16	1,191
1987	359	187	167	200	136	163	17	1,229
1988	362	196	164	210	139	161	19	1,251
1989	369	207	172	222	140	161	19	1,290
1990	380	215	180	235	140	161	19	1,330

1/ Data are estimates based on production and sales figures from government and private industry.

and set up the Desert Storm operation. Starch production was also down in the first part of the third quarter. Possibly this signaled a return to normal starch use in industrial uses and a decline in response to the weak economy. Still, the strong first-half corn use will keep total use for the marketing year nearly 5 percent above 1989/90.

Prices of corn sweeteners tend to rise seasonably beginning in late March and peak in late summer. Midwest prices for HFCS-42 began climbing in late

March 1990 and peaked at 16.29 cents per pound from July through September. With increased production, spot prices weakened to 12.78 in October through March before rising again to 14.70 in April. If the price of sugar remains low in the remainder of the 1990/91 marketing year, the seasonal increase might not be as strong as usual.

Ethanol production in 1990/91 is expected to be up nearly 4 percent from 1989/90. During September through January 1990 (the latest data available),

ethanol use was up 14 percent from the year earlier. The increase resulted from higher gasoline prices caused by the unrest in the Middle East. Through February increased use is expected, after which gasoline prices declined. In addition, exports of ethanol have been limited this year and will not contribute to corn use as they did from January-June 1990.

Transportation Update

Total Use of Grain and Soybeans Projected Up Slightly in 1991/92.

The supply of transportation equipment will remain adequate, but some additional rate increases are expected.

First Look at 1991/92

Exports and domestic consumption of total grains and soybeans for 1991/92 were initially projected at 355.7 million metric tons, up slightly from 1990/91. Exports are projected up 4 percent from the current crop year, suggesting modestly increased demand for long haul transportation service in the coming year. Projected 1991/92 exports, however, are nearly 5 percent below 1989/90. As a result, no equipment shortages are in view for 1991/92. Exports of corn and soybeans are projected up nearly 3 million metric tons. Barge shipments usually account for 50-60 percent of all corn exported and 65-75 percent of soybeans exported. If export demand strengthens early in 1991/92, rates can be expected to rise. Rail rates might also move up, but the contract rates for multi-car shipments are difficult to change in reaction to short lived fluctuations in demand.

Outlook for 1990/91 Is Little Changed

For the current crop year, total use of grain and soybeans is estimated down 1 percent from 1989/90. Corn exports are estimated to be 28 percent below the prior year and soybean exports are estimated down 13 percent. Shipments of grain by both rail and barge have averaged well below last year. Rail shipments (September-April 1990/91) averaged 11 percent below last year and barge shipments are down 6 percent. Rail shipments may pickup in June as winter wheat is harvested. But barge volume is expected to remain down during the remainder of 1990/91, unless a sudden surge in exports develops.

A reduction in corn exports is the chief cause of the slackening in rail car loadings of grain during September-April 1990/91. Hardest hit of the port areas has been the Pacific Coast where rail receipts of grain have averaged 3,300

cars per week (September-April), down 30 percent from the same period last year.

Diesel Fuel Prices Continue Down But Likely Hit Bottom

The Interstate Commerce Commission reports that diesel fuel prices averaged \$1.178 per gallon in April 1991. This is 25 percent below the peak month of

October 1990 and 2 percent below August 1990. Since a 5-cents-per-gallon tax was applied to diesel fuel on January 1, 1991, base prices are now well below last year. Preliminary data for May indicate that prices have stabilized in the \$1.17-\$1.18 per-gallon range. While these data apply only to fuel used by trucks, the downturn in fuel prices has reduced upward pressures on rates for all modes.

Figure 9
Monthly Average Diesel Fuel Price

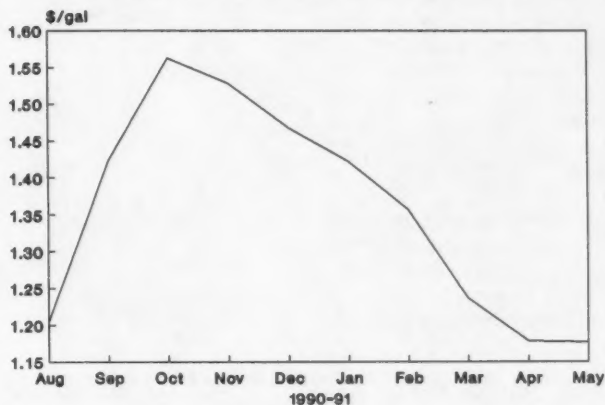
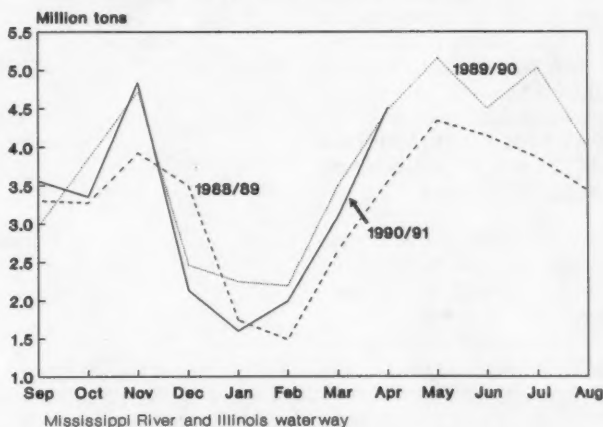


Figure 10
Average Monthly Shipments of Grain



By April 1991, chiefly due to lower fuel costs, truck operating costs had fallen to \$1.28 per mile, nearly 7 percent below the record set in October 1990. Still the cost of trucking grain remains above April 1990, \$1.27 per mile. No dramatic changes in costs are in view for remainder of the crop year.

Barge Volume Up Seasonally, But Further Increases Unlikely

September-April barge shipments of grain and soybeans averaged 3.1 million tons in contrast to 3.3 million tons for the same months of 1989/90. This reflects a 15-percent decrease in grain exports (as measured by inspections for export) through the U.S. Gulf from the same period of 1989/90. Corn led the decline, down 17 percent. Wheat and soybean exports also fell markedly, down 12 and 13 percent, respectively.

Improving navigation conditions and a pickup in the export pace caused barge shipments in March to increase 55 percent over February to 3.1 million tons. April showed a 29 percent increase from March to 4 million tons. In the prior year, April shipments had totaled 4.5 million tons.

Navigation conditions are expected to remain favorable for the rest of 1990/91. Relatively weak export demand, however, is likely to keep volume at or below 4 million tons per month through August.

Barge Rates Remain Stable, Little Prospect for Rise This Year

Barge rates through April have been less volatile than in prior years. Although grain volume was up dramatically in March and April, rates declined in both months. In April 1991, rates from both Peoria, IL, and St. Louis, MO, to New Orleans averaged 31 percent below April 1990. From Peoria, April rates averaged \$5.28 per ton. From St. Louis, rates averaged \$3.88 per ton.

Barge rates are expected to remain down during the remainder of the 1990/91 year. It appears that the number of barges available is in excess of current needs. As a result, a sudden upturn in export prospects would result in no more than a modest increase in rates.

Favorable Navigation Conditions Expected for Mississippi River

Historically the Mississippi River's depth has fluctuated dramatically. At St. Louis, MO, the July level (as measured at the flood gauge) has averaged as high as 37.1 feet and as low as 0.6 feet (1944-1988). On average, the July level has been 15.0 feet. Absolute daily highs of 40.2 feet and lows of minus 2.2 feet have been found during the same period. While a clear seasonal pattern exists, precipitation in the watersheds feeding the Mississippi can cause the river level to rapidly rise or fall.

In April 1991, the St. Louis flood gauge averaged nearly 21 feet, 6 percent above the 1944-88 average, and 10 feet above

April 1990. Assuming the historical trend prevails, the river's depth will decline throughout 1991, but channel depths will be sufficient to allow unimpaired navigation. The Missouri River, which empties into the Mississippi slightly upstream from St. Louis, poses a question mark for the remainder of the navigation season. The Missouri normally is the source of 40-60 percent of the total water flow at St. Louis.

Drought Shortens Navigation Season; Lowers Channel Depth on the Missouri River

Much of the Missouri's water comes from reservoirs located in Montana and the Dakotas. For the third year in a row, precipitation in these states has failed to refill the reservoirs. At mid-May the

Figure 11
Barge Rates to New Orleans

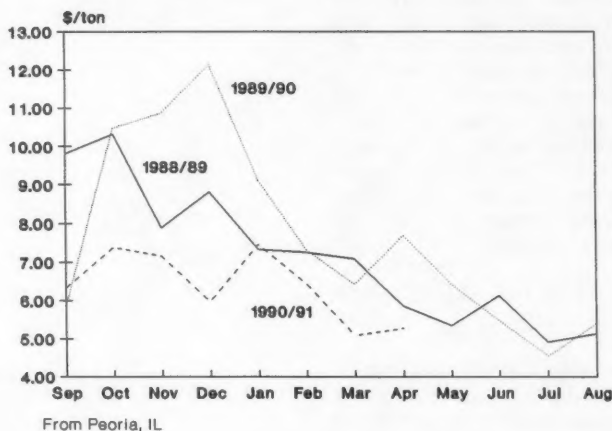
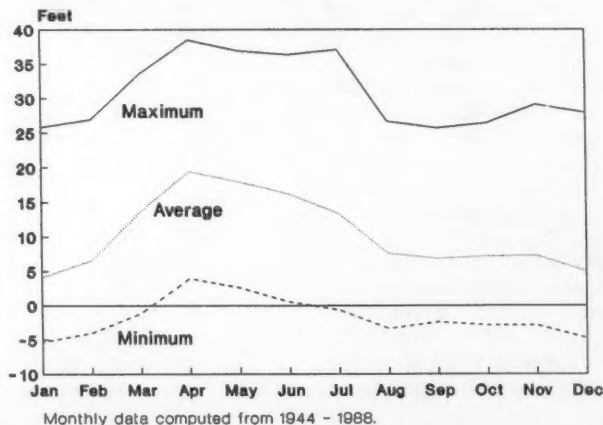


Figure 12
Flood Gauge Reading: St. Louis, MO



reservoirs were less than 60 percent full. Water from these reservoirs provides irrigation, hydroelectric power, municipal supplies, recreation, and wild life support as well as navigation. As part of its water management program, the U.S. Army Corps of Engineers has announced a navigation season 5 weeks shorter than usual, and a reduction in channel depth to 7.5 feet during the season. A similar short season was in effect last year and the lower channel depths reduced barge load size by about 10 percent.

In April 1991, the flood gauge at Kansas City, MO, averaged 15.3 feet, 19 percent above 1990 and 378 percent above 1989. This year's relatively high water is the result of precipitation between Sioux City, IA, and Kansas City, MO. As precipitation slackens seasonally, the Missouri's level is expected to fall. At this time, water flows are expected to be somewhat below last year and navigation conditions are expected to be slightly worse than in 1990.

In 1988, the last year for which data is available, about 688 thousand tons of grains and soybeans were shipped on the Missouri, up 76 percent from the prior year. In both years Missouri traffic accounted for less than 1 percent of total barged grain. Low water problems on the Missouri will have little impact on the national grain distribution system. The reduced navigation season and barge capacity brought about by lower water levels, however, substantially reduce the cost/benefit ratios of grain shippers.

Rail Volume Below Last Year; Rates Continue To Rise

Rail shipments of grain and soybeans during September-April 1990/91 averaged 26,350 cars per week, 11 percent below the same period of 1989/90 and a five-year low for the month. Much of this reduction stems from a 40-percent decline in rail deliveries to ports. During 1989/90, on average, 35 percent of all railed grain was delivered to ports. Through April this year, only 24 percent of grain loadings have been for export. The change is most evident at the Texas and Pacific Coast Ports that, in total, have averaged about 2,200 fewer rail cars per week than in the same months of 1989/90. Shipments of grain

Figure 13
River Stages at Sioux City

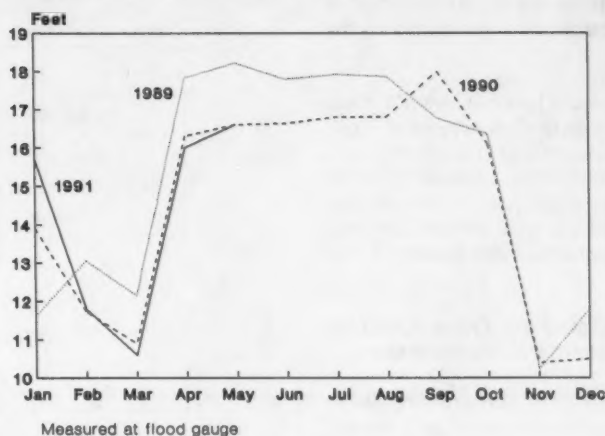


Figure 14
River Stages at Kansas City, MO

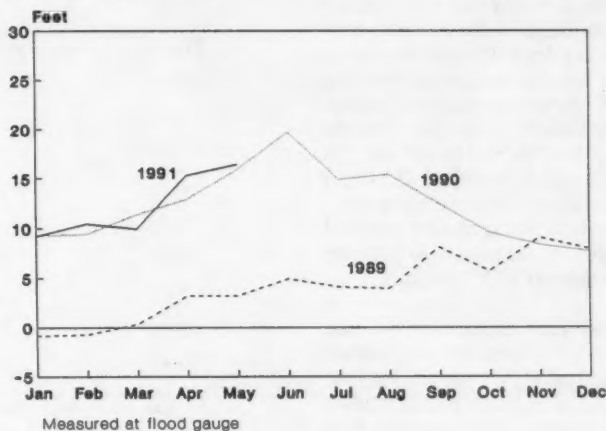
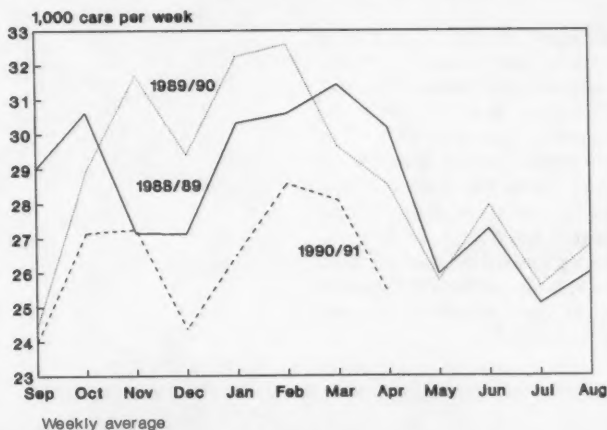


Figure 15
Rail Car Loadings of Grain & Soybeans



to Pacific Coast Ports during the first 7 months of 1990/91 have averaged 44 percent below the 46,900 cars per week posted for the same period of the prior year.

The Bureau of Labor Statistics' rail rate index for grain shows rates rose 1 percent during the September-April period of 1989/90. (Dec. 1984=100) For the same period this year, preliminary data shows a 1.2 percent increase. In April 1991, rates were 2 percent above a year earlier.

Certificates of Transportation Fluctuate in a Narrow Range

The Burlington Northern's minimum acceptable bids for single car shipments offered under the Certificate of Transportation (COT) Program showed no increase from February 7th through May 16, 1991. COT minimum bids for shipments in 54-car-unit trains show a mixed picture over the February-May period. On April 22nd, minimum acceptable bids for cars to be delivered in June 1991 for use in West bound movements fell nearly 7 percent from the February level to \$2,415 per car. On May 13th, bids again fell to \$2,315 per car, but bids for cars to be delivered in October were posted at a minimum of \$2,590 per car, the same as in February for June delivery of 100-ton cars.

Minimum acceptable bids for East bound 54-car-unit trains have remained unchanged at \$1,788 per car for June delivery. The first unit trains offered for October delivery in this corridor were also priced at \$1,788 per car.

Operating Costs To Fall In Second Quarter 1991

The Interstate Commerce Commission has forecast that railroad operating costs, adjusted for productivity, will drop 0.2 percent from the first to the second calendar quarter of 1991. This reduction results chiefly from falling diesel fuel prices, but other cost elements are forecast to rise slightly. In the third quarter, wage rates are likely to rise, creating upward pressure on rates. At this time it appears that rail rates will continue to creep upward during the remainder of 1990/91.

Figure 16
Rail: Weekly Average Grain Unloadings

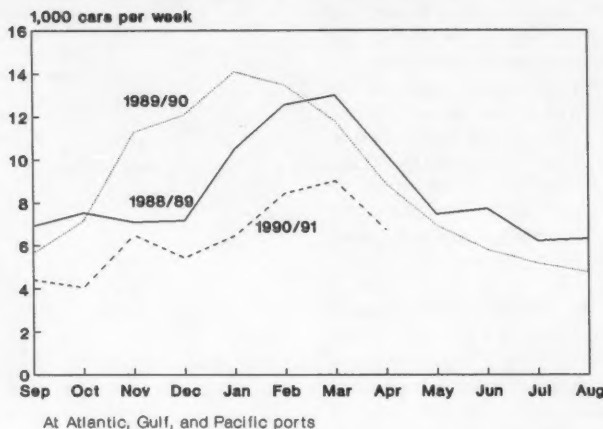
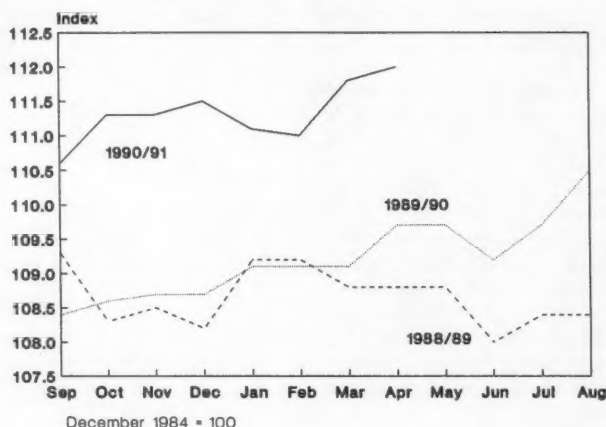


Figure 17
Rail Rate Index for Grain



World Coarse Grain Supply and Use Projected Up During 1991/92

Global coarse grain production is projected to rise 6 million tons in 1991/92, despite lower foreign output, with world carryin stocks forecast to be about the same as in 1990/91. Global consumption is projected up about 3 million tons with ending stocks rising a similar amount.

Global output of coarse grains is projected to rise 6 million tons in 1991/92 to 831 million. This would rank as the third highest on record. An increase in U.S. production is expected to more than offset a decline in foreign output. The outlook includes a projected record world corn crop, nearly 3 percent above the 1985/86 record. With carryin stocks about the same as 1990/91, total world coarse grain supply is projected to increase almost one percent. This assessment is based on USDA's initial projections for the 1991/92 season. Changes in 1990/91 forecasts are still possible with a few months remaining in the season.

Global consumption in 1991/92 is projected up about 3.5 million tons to 827 million tons, slightly eclipsing the 1989/90 record, based on small gains in both U.S. and foreign use. Foreign coarse grain use in 1990/91 is forecast to decline 11 million tons, in part because some countries have increased wheat feeding at the expense of coarse grains. In 1991/92, although some reduction in wheat feeding is assumed, the projected increase in foreign coarse grain use is a modest 2 million tons. A projected drop of more than 4 million tons in coarse grain use by the Soviet Union is limiting overall foreign gains.

World ending stocks of coarse grains are projected to increase about 3 million tons in 1991/92, as larger U.S. stocks outweigh a decline in foreign stocks. This marks a reversal from the 1990/91 pattern, with foreign stocks forecast up and U.S. stocks down. The projected world ending stocks-to-use ratio is 15.5 percent in 1991/92, compared with 15.2 in 1990/91. While this indicates some easing of supply concerns, the ratio is still relatively tight by historical standards.

Foreign Output To Decline

Foreign production of coarse grains is projected at 590 million tons in 1991/92, down almost 4 million tons from the forecast 1990/91 record. Although foreign area harvested is expected to rise marginally, average yields are likely to retreat from the 1990/91 record, assuming normal weather conditions. Foreign production of corn will show the largest year-to-year increase, projected up about 16 million tons to a record 282 million. Large declines are expected for barley and rye, a small drop for oats, and little change for sorghum.

The largest change among foreign producers is expected in the Soviet Union. The coarse grain crop is projected to fall nearly 9 million tons from the bumper level of 1990/91, despite an increase in area. Soviet corn production is likely to rebound from a poor performance a year earlier, but sharp drops are likely for barley and rye. Soviet wheat output is projected to decline even more sharply, leading to a projected total grain crop of 210 million tons (bunker weight), down 25 million from the 1990/91 estimate. Soviet grain yields are forecast to decline because of continued reports of input and fuel shortages and reduced area of higher-yielding winter grains due to wet conditions during fall planting.

Production in China is projected to decrease nearly 7 million tons in 1991/92 due to a lower corn crop. However, corn and total coarse grain output are both projected to be second only to the record 1990/91 outturn. The bumper 1990/91 harvest has depressed prices and reduced market incentives to plant as much area, although the government continues to press for more production. Farmers are expected to

plant more cotton and other cash crops in lieu of corn.

The largest gain in 1991/92 coarse grain production is expected in the European Community (EC), where an increase of more than 6 million tons is projected. The key reason is the likely recovery of France's corn crop, which suffered from drought in 1990. Total coarse grain area is expected to be stable. (USDA's data base now combines East and West Germany in the EC, and excludes East Germany from Eastern Europe.)

Eastern Europe is projected to realize the second largest gain in coarse grain production in 1991/92, up nearly 5 million tons. This mainly reflects expectations of more normal corn yields in the Balkan states that were hit by adverse weather in 1990/91. Policy reforms and structural changes have apparently had a limited impact on agricultural production so far, probably because of their limited scope or ineffectiveness. Reforms have had a more immediate effect on consumption where reductions in consumer subsidies and changes in livestock production are cutting coarse grain use.

For competing exporters other than the EC, the outlook for 1991/92 coarse grain crops is mixed. A substantial fall in Canada's production is forecast because of lower area and yields, which benefitted from excellent weather in 1990/91. Australia's output is projected up 9 percent. Farmers are shifting some wheat area into barley in Australia because of relative price expectations. In Thailand, production is forecast to be about the same as a year earlier.

For the major Southern Hemisphere producers, Argentina and South Africa, changes are expected to be offsetting. Argentina, now wrapping up an excel-

lent 1990/91 coarse grain crop, is likely to produce about 1 million tons less, assuming average yields in 1991/92. A late start to seasonal rains in South Africa reduced and delayed plantings for the 1990/91 corn harvest now underway. Because much of the crop was late, it was also subject to frost damage. South Africa's crop is projected to rebound 1 million tons in 1991/92, assuming more normal conditions.

Downtrend in Area Slowing Foreign Production Growth

In recent years, increases in foreign coarse grain output have been below the long-term trend. Although a small area increase is expected in 1991/92, foreign area has displayed a striking declining trend in recent years following a peak in the early 1980's. This has been largely offset by increases in average yields, but not enough to prevent some reduction in the rate of foreign production growth.

Developments among the largest producers account for much of this downtrend. EC coarse grain area has declined sharply throughout the 1980's, mainly reflecting some switching into wheat and oilseeds. The set-aside program started in 1988 has accounted for very little reduction in area because of a lackluster response by EC farmers. Eastern Europe has displayed a similar pattern with decreased coarse grain area, while wheat area has been moving upward. In China, there is intense pressure on cultivated land because of housing construction, new factories, and other nonfarm uses. While total coarse grain area in China has been falling over the last 2 decades, corn area has generally increased somewhat based on relative profitability.

In the Soviet Union, total grain area has declined steadily since 1980 and, by 1990/91, had fallen to the lowest level since at least 1955. However, after fluctuating throughout much of the decade, Soviet coarse grain area only began to fall significantly in the late 1980's. This is primarily the result of farmers switching land to forage. The Soviet Union still has the largest coarse grains area of any country in the world. In India, coarse grain area has generally been falling since the mid-1970's, although in the last 3 years, it has been up slightly.

Figure 18
Foreign Coarse Grain Area and Trend

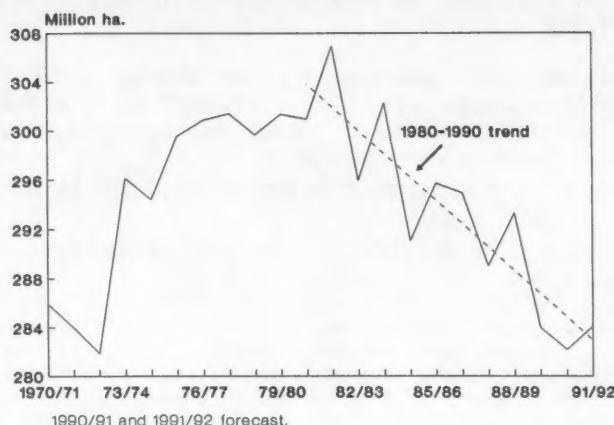


Figure 19
Foreign Coarse Grain Yield and Trend

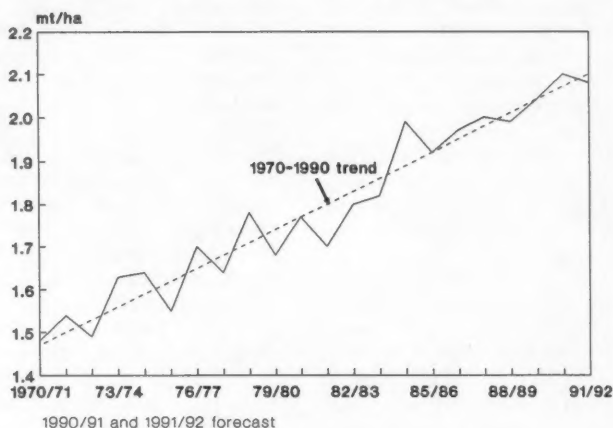
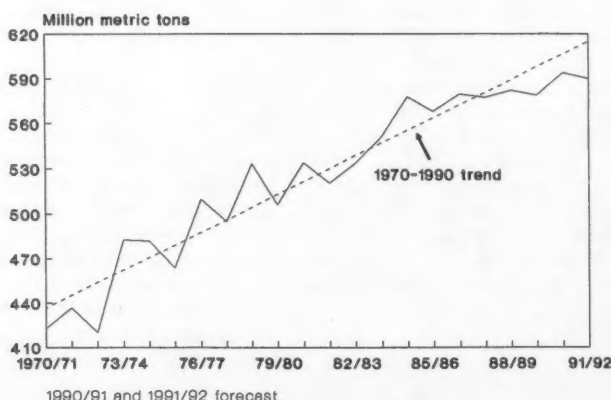


Figure 20
Foreign Coarse Grain Production and Trend



India accounts for the second largest foreign coarse grain area.

Foreign yields have been increasing quite steadily over the last 2 decades. The average annual rate of yield growth in the 1980's picked up to about 1.9 percent, compared with 1.7 percent in the 1970's. For the top 3 foreign producers—the Soviet Union, China, and the EC—even higher rates have been achieved during the 1980's. Nevertheless, because of the loss of area, the rate of foreign production growth has been slowing. Foreign coarse grain output grew at an average annual rate of about 2.4 percent in the 1970's, but only 1.2 percent in the 1980's.

Table 3--World coarse grain trade: Major exporters and importers by commodity, 1987/88-1991/92 1/

Item	1987/88	1988/89	1989/90	1990/91 2/	1991/92 3/
Million metric tons					
CORN					
Exporters:					
U.S.	44.5	51.3	59.9	44.3	44.5
Argentina	3.7	2.5	3.0	4.1	4.2
China	4.1	3.7	3.2	6.0	5.0
Thailand	0.7	1.4	1.4	1.2	1.2
South Africa	0.6	2.0	2.9	0.4	0.1
Others	3.1	2.8	2.7	0.9	2.0
Total	56.7	63.8	73.0	56.9	57.0
Importers:					
Japan	16.7	15.9	16.2	16.2	15.9
USSR	7.9	17.9	17.8	8.0	9.0
EC-12	4.4	2.9	4.1	3.5	2.0
Korea, Rep.	5.0	5.7	6.1	5.3	6.3
Taiwan	4.2	4.2	5.3	4.6	4.6
Mexico	3.2	3.2	5.0	2.5	2.5
China	0.2	0.0	0.5	0.0	0.0
East Europe	1.4	1.7	2.5	2.0	0.8
Brazil	0.0	0.2	0.4	0.8	0.5
Egypt	1.4	1.2	1.4	1.9	1.8
Others	12.3	10.9	13.7	12.1	13.6
Total	56.7	63.8	73.0	56.9	57.0
SORGHUM					
Exporters:					
U.S.	6.1	8.1	7.3	5.7	5.3
Argentina	1.2	0.7	1.2	1.4	1.4
Australia	0.6	0.3	0.0	0.1	0.2
Others	0.5	1.7	0.5	0.4	0.4
Total	8.3	10.8	8.9	7.6	7.3
Importers:					
Japan	3.9	4.1	3.9	3.6	3.6
Mexico	0.9	2.3	3.0	2.5	2.7
Taiwan	0.3	0.1	0.0	0.1	0.1
Venezuela	1.7	1.0	0.1	0.0	0.0
Israel	0.4	0.4	0.4	0.3	0.3
USSR	0.0	1.2	0.3	0.0	0.0
Others	1.1	1.7	1.2	1.1	0.6
Total	8.3	10.8	8.9	7.6	7.3
BARLEY					
Exporters:					
EC-12 4/	7.0	9.0	7.2	7.0	8.0
Canada	3.5	3.4	3.7	4.0	4.1
Australia	1.6	1.4	2.4	1.7	2.0
U.S.	2.9	1.7	1.9	2.0	1.9
Others	0.9	1.3	0.6	1.4	1.2
Total	16.0	16.8	15.8	16.0	17.1
Importers:					
Saudi Arabia	4.8	4.6	3.3	4.5	4.5
USSR	2.3	3.2	4.4	3.5	4.5
East Europe 5/	0.8	0.9	0.4	1.4	0.8
Japan	1.3	1.3	1.3	1.2	1.3
Others	6.8	6.8	6.4	5.4	6.1
Total	16.0	16.8	15.8	16.0	17.1
COARSE GRAINS					
TOTAL TRADE	82.9	94.2	100.2	83.2	83.8

1/ October-September year, excludes intra-EC trade. Totals may not add because of rounding. 2/ Forecasted. 3/ Projected. 4/ Includes former East Germany. 5/ Excludes former East Germany.

Little Growth Seen in U.S. Exports and World Trade In 1991/92

World trade is projected to increase less than a million tons in 1991/92, with Soviet imports playing the key role in shaping trade. U.S. export share is expected to decline slightly.

U.S. coarse grain exports are initially projected at 51.7 million tons in 1991/92, compared with 52 million forecast in 1990/91.¹ World coarse grain trade is expected to show little change, projected at 83.8 million tons compared with 83.2 million in 1990/91. World trade in corn is expected to be about the same from year to year, sorghum down about 4 percent, and barley up about 7 percent.

Competitor exports in aggregate are projected up slightly in 1991/92. A number of changes among the individual suppliers are likely, but these are largely offsetting. The biggest increase, about 1.5 million tons, is projected for the EC because of larger forecast crop production, particularly for corn, and large stocks of barley. Australia's exports are projected up 500,000 tons, reflecting increased output of barley and sorghum.

The largest decline among competitors is projected for China, with its corn exports down from 6 million tons in 1990/91 to 5 million in 1991/92 because of lower expected production. China will apparently carry over large surpluses of corn into the new season, but it might experience significant losses due to limited storage capacity. Since 1987/88, China has been the largest corn exporter outside of the United States.

After soaring to 69 percent in 1989/90, the U.S. share of the world coarse grain market is forecast at about 63 percent in 1990/91. For 1991/92, the U.S. market share is projected at about 62 percent, which would be the lowest since 1986/87. Sluggish imports rather than increased competitor exports are responsible for this sharp decline in share. Competitor shipments are

forecast unchanged in 1990/91 while imports are plummeting 17 million tons, chiefly due to an 11-million ton reduction in purchases by the Soviet Union.

Aggregate imports by countries other than the Soviet Union have been quite stable since 1983/84, except for an upward spike in 1989/90. The Soviet Union's volatile import pattern accounts for much of the variation in total world trade. During recent months, expectations of large Soviet imports have virtually disappeared from the market. A lack of foreign exchange and the country's economic and political crises have seriously hampered grain imports.

Soviet coarse grain imports in 1991/92 are projected to increase to 14 million tons from the 11.9 million forecast in 1990/91. However, given the size of the projected decline in its domestic grain crop, the import forecast would normally be considerably higher. Exporter credit has become critical for the Soviets, influencing both the amount and the mix of grains bought. Most Soviet grain imports in 1990/91 have

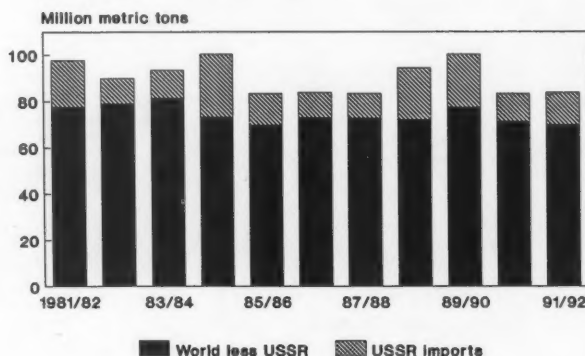
been assisted by credit, barter, or other exporter arrangements. U.S. corn sales to the USSR had reached 6.5 million tons as of May 9, of which about three-quarters were made under the GSM credit guarantee program. The Soviets have recently requested more GSM credit for immediate purchases, but the President has not yet made a decision. Although they have received numerous credit offers for wheat and barley from foreign suppliers, there have been none reported for corn. USSR imports of corn from China have apparently been on a barter basis.

Another factor that could affect Soviet demand for imported feed grains is a continuing reduction in livestock and poultry numbers. This probably reflects severe problems in the State feed sector due to lower grain procurement.

Mexico's Imports Decline With Bumper Crop

In addition to the dramatic fall in 1990/91 Soviet imports, imports by

Figure 21
World Coarse Grain Trade and
Key Role of Soviet Union



1990/91 and 1991/92 forecast

¹/ All trade years referred to in this section are October-September and exclude intra-EC trade unless otherwise specified.

Soviets, influencing both the amount and the mix of grains bought. Most Soviet grain imports in 1990/91 have been assisted by credit, barter, or other exporter arrangements. U.S. corn sales to the USSR had reached 6.5 million tons as of May 9, of which about three-quarters were made under the GSM credit guarantee program. The Soviets have recently requested more GSM credit for immediate purchases, but the President has not yet made a decision. Although they have received numerous credit offers for wheat and barley from foreign suppliers, there have been none reported for corn. USSR imports of corn from China have apparently been on a barter basis.

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poultry numbers. This probably reflects severe problems in the State feed sector due to lower grain procurement.

Mexico's Imports Decline With Bumper Crop

In addition to the dramatic fall in 1990/91 Soviet imports, imports by other countries, particularly Mexico and South Korea, are also forecast down in 1990/91. For 1991/92, coarse grain purchases by South Korea are projected to rise 1 million tons because of expected reductions in imports of wheat for feeding. However, other than this, little or no growth is projected for most other importers.

Mexico's coarse grain imports have displayed a great deal of variability in the

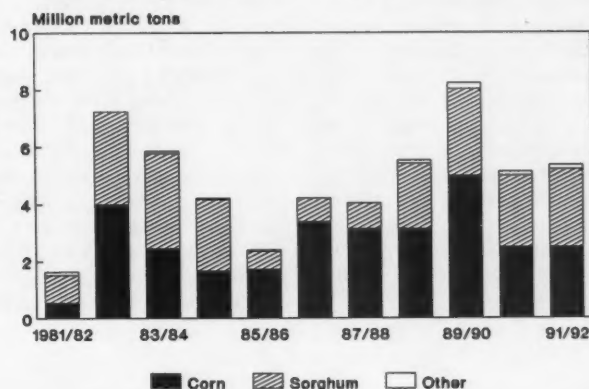
last decade, mainly reflecting changes in domestic production. In 1989/90, its imports surged nearly 50 percent from the previous year to a record 8.2 million tons, with virtually all of this from the United States. Mexico's import gain of 2.7 million tons from the previous year was the largest of any country in the world. However, in 1990/91, Mexico's imports are forecast down to 5.1 million tons following a bumper harvest.

The Mexican government has recently been increasing incentives to grow corn, one of the main staple foods, by raising guaranteed producer prices. In 1990/91, higher plantings and good weather resulted in a large rise in corn production, and corn imports are forecast down 50 percent. Sorghum imports are forecast down about 17 percent. Mexico's production of sorghum, more important than corn for feed, changed little in 1990. However, to spur use of domestic stocks, in late 1990, Mexico placed an import tariff on sorghum for about 3 months to discourage imports. It is reportedly considering imposing another temporary tariff for the remainder of 1991.

In 1991/92, Mexico's coarse grain production is likely to drop slightly, given the likelihood of less favorable weather. Corn area is projected to rise further due to price incentives. Thus only minor gains in imports are expected, with imports projected to increase 4 percent to 5.35 million tons. However, higher livestock production and population increases are expected to result in strong growth in Mexico's imports over the longer-term.

Figure 22

Mexico's Coarse Grain Imports



1990/91 and 1991/92 forecast

Forecasting Season-Average Corn Prices Using Current Futures Prices

by Linwood A. Hoffman¹

Abstract: A model was developed that uses futures prices to forecast national season-average producer prices of corn. A monthly historical basis was computed between the monthly average nearby futures price and the monthly average national farm price of corn. A monthly forecast of producer prices received was computed by adding this basis to the futures price. A weighted season average price of corn was computed from the forecasted monthly prices. This model appears to provide timely and reasonable forecasts of national season-average farm prices of corn.

Keywords: Basis, corn, forecasts, futures market, futures-model forecast, season-average prices.

Introduction

Commodity price forecasting is an important and ongoing task conducted by both the private and public sectors. Forecasting methods range from sophisticated econometric models to expert qualitative judgement. Policy makers are constantly seeking ways to assess existing price forecasts or to quickly analyze the effects of domestic or international events upon agricultural prices. Farm price forecasts are important to taxpayers, producers, and consumers.

A short-run change in farm price depends upon factors that affect each commodity's supply and demand functions. Estimates of farm price forecasts should be based on expectations of shifts in these factors. While some have questioned the impact of technical traders on the futures market, the futures market is still considered as a composite indicator of expectations of shifts in supply and use and thus can be used to forecast short-run farm prices (Danthine, 1978; Gardner, 1976; Peck, 1976; and Rauser and Just, 1979).

Many market participants understand that current futures prices provide important information about expected cash prices in future months. However, these participants need to be able to forecast a price where and when they plan to buy or sell, not the futures price at the Chicago Board of Trade or other futures markets. Thus, they need to predict the basis between the futures

price and their local price. Similarly, when making decisions about farm programs, policy makers need to have the ability to convert the futures market's price expectation into a national average farm-level equivalent.

A model was developed which uses available futures prices to forecast a weighted season average farm price for corn. A background section describes the cash and futures-price relationship. A description of how the futures-price model was constructed is provided. Forecast results are presented for the 1990/91 and 1991/92 crop years, along with a forecast accuracy test of past crop years. Price forecasts from the *World Agricultural Supply and Demand Estimates* (WASDE) are presented in order to gain a perspective of the futures forecasts.

Background

An efficient futures market is beneficial to society and can provide alternative marketing strategies for producers, handlers, and processors. Futures markets facilitate price discovery and provide price information to market participants. Some price risk, typical of commodity inventory ownership, can also be shifted with an efficient futures market.

Futures prices are determined by the interaction between expected and current demand and supply for a particular commodity. Hedgers and speculators must evaluate planting intentions, weather factors, government policy parameters, and domestic and export consumption potential, as well as, the current situation. Hedgers deal with the

actual commodity, as well as, the futures contract. Speculators generally do not have a direct connection to the cash commodity but seek to profit from futures price changes.

An important reason for having a futures market is that it allows those who produce, use, or store the product to hedge against commodity price changes. A successful hedge requires the end-of-period basis (the difference between futures price and cash market price at the end of the hedging period) to be more predictable than the cash price. The basis for storable crops is generally widest at harvest time, reflecting the cost of storing the commodity until the future delivery date. The basis narrows—the cash price gradually approaches the futures price—as the contract maturity date is approached.

Forecasting Method

The U.S. price received by farmers for corn is forecast for each of the twelve months of the crop year, starting with September. Each monthly forecast is based on the currently observed corn futures price for the first contract that matures after the month being forecast. This is referred to as the nearby futures contract. The forecast U.S. farm price for each month is obtained by adding the average basis to the nearby futures price. Once forecasts of monthly prices are obtained, a weighted national season-average price is calculated by weighting each monthly price by the historical monthly marketing weights.

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Mathematical Model

A simple set of mathematical relationships is listed below to explain the forecast procedure.

(1) Monthly U.S. farm prices for corn are forecast as follows:

$$(a) P_i = F_{it} + b_i$$

where:

P_i = Forecast U.S. farm price of corn in month i . There are 12 monthly prices to be forecast, September through August.

F_{it} = Futures settlement price of corn on day t of the first contract to mature after month i . There are 5 futures contracts: December, March, May, July, and September.

b_i = The basis in month i . The basis for each month requiring a forecast price is equal to the monthly historical average of the nearby futures contract for corn less the monthly historical average of the U.S. farm price for corn.

(b) $E_k P_i = E_k F_{it} + E_k b_i$. The expected monthly producer price is equal to the nearby futures price plus the average basis.

(2) Compute the forecast of the weighted season average U.S. farm price of corn:

$$SAP = \sum m_i (P_i)$$

where:

m_i = U.S. marketing weight for corn for month i .

$P_i = c_i$ if an observed farm price (c_i) exists for past months, otherwise

$P_i = (F_{it} + b_i)$ for future months.

Basis

The difference between a cash price at a specific location and the price of a particular futures contract is known as the basis. Historically, variation in the basis has been less than in either cash or futures prices. Some factors that explain the basis include: local supply and

demand for the commodity and its substitutes, transportation and handling charges, transportation constraints, storage space, storage costs, interest and/or opportunity costs, conditioning capacities, and market expectations. The basis calculated for this model represents the average U.S. effect of these factors.

The basis computed in this study is the difference between the monthly national average price of corn received by producers and the nearby futures settlement price. For example, the September basis equals the average settlement price of the December futures contract in the month of September less the average U.S. farm price for corn. A 5-year moving average basis is computed thereby eliminating distortions that would likely occur in a given year and is updated at the end of each crop year.

An alternative-basis calculation was examined but results did not differ significantly from the present procedure. In an attempt to account for the effects of inflation, a ratio was computed that consisted of the average cash price received over the average futures settlement price of the nearby futures contract. Although the ratio method accounts for the effects of inflation, the arithmetic basis did not cover a long enough time span to be significantly affected by inflation.

Monthly Weights

A weighted season-average U.S. price of corn was computed by using each month's forecast farm price and historical marketing weight. A certain percentage of the total is marketed each month. A 5-year moving average of these monthly weights was constructed (1985/86 through 1989/90) and is updated annually. After the release of the December *Crop Production*, published by the National Agricultural Statistics Service.

Data

Historical daily corn futures settlement prices for marketing year 1981/82 through 1989/90 were obtained from the Commodity Futures Trading Commission. Current futures prices for crop year 1990 were taken from the *Wall Street Journal*. Monthly average corn

farm prices for marketing year 1981/82 through April 1990 were acquired from *Agricultural Prices*, published by National Agricultural Statistics Service. Monthly marketing data for crop year 1981/82 through 1989/90 were obtained from the December issues of *Crop Production* published by the National Agricultural Statistics Service.

Procedure

This model can provide a forecast anytime during the month. However, weekly forecasts were made using Thursday's futures settlement prices. Tables A-1 and A-2 present the recent forecasts of the season average farm prices of corn for 1990/91 and 1991/92. The U.S. season-average farm price for corn for 1990/91 was forecast using reported actual monthly farm prices through April and the futures market to forecast May-August farm prices. For 1991/92, forecasts were based on futures prices for corn from the December 1991-September 1992 contract months. Two forecasts are made using the futures model: first, corn producers' season-average price for the crop year 1990/91 with the forecast period beginning in May 1990 and second, the season average price for crop year 1991/92 with the forecast period beginning in May 1991.

Several major steps are involved in the forecasting process. First, the latest available futures prices are gathered for existing contracts. The procedure used to develop the forecasts for 1990/91 and 1991/92 shown in tables A-1 and A-2 are used for illustration. Thursday settlement prices as of May 16th (table A-1, line 1) and May 9th (table A-2, line 1) were used.

The forecast made in May 1991 for the farm price of corn 1991/92 requires futures prices of corn from contract months December 1991, March, May, July, and September 1992 (table A-2, line 1). However, the September 1992 futures price (used to forecast July and August 1992 monthly prices) was not available. Thus, a 5-year average spread between the July and September contract was used to arrive at a proxy for September 1992 futures price.

The settlement price of the nearby contract was used for the monthly futures

Table A-1--Futures forecast of U.S. corn producers' season-average price, crop

Item	Sept.	Oct.	Nov.	Dec.	Jan.
(1) Current futures price by contract (settlement)					
(2) Monthly futures price based on nearby contract					
(3) Plus basis	-0.15	-0.23	-0.19	-0.18	-0.17
(4) Forecast of monthly average farm price					
(5) Actual monthly farm price	2.32	2.19	2.16	2.22	2.28
(6) Spliced actual/forecast monthly farm price	2.32	2.19	2.16	2.22	2.28

Annual price projections:

(7) Simple average	2.3080				
(8) Weighted average	2.3200				
(Marketing weights in percents)	7.15	13.25	10.89	8.19	12.51

1/ Contract months include: September, December, March, May, and July. Futures prices as of May 16, 1991.

crop year 1990-91.

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Dollars/bushel								
						2.4650		2.4600
				2.47	2.47	2.46	2.46	
-0.15	-0.11	-0.14	-0.13	-0.15	-0.20	-0.06	-0.06	
				2.32	2.27	2.40	2.40	
2.27	2.32	2.39	2.44					
2.27	2.32	2.39	2.44	2.32	2.27	2.40	2.40	

12.27 6.91 7.65 7.16 7.03 7.16 5.89 6.39

Futures price quotations from the Chicago Board of Trade, Thursday settlement,

Table A-2--Futures forecast of U.S. corn producers' season-average price,

Item	Sept.	Oct.	Nov.	Dec.
(1) Current futures price by contract (settlement)				2.4775
(2) Monthly futures price based on nearby contract	2.48	2.48	2.48	2.55
(3) Plus basis	-0.15	-0.23	-0.19	-0.18
(4) Forecast of monthly average farm price	2.33	2.25	2.29	2.37
(5) Actual monthly farm price				
(6) Spliced actual/forecast monthly farm price	2.33	2.25	2.29	2.37

Annual price projections:

(7) Simple average	2.4000			
(8) Weighted Average	2.3860			
(Marketing weights in percents)	7.15	13.25	10.89	8.19

1/ Contract months include: September, December, March, May, and July.
as of May 9, 1991.

rice, crop year 1991-92

c.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Dollars/bushel									
75			2.5525		2.5900		2.6350		2.5150
55	2.55	2.55	2.59	2.59	2.64	2.64	2.52	2.52	
18	-0.15	-0.11	-0.14	-0.13	-0.15	-0.2	-0.06	-0.06	
37	2.4	2.44	2.45	2.46	2.49	2.44	2.46	2.46	
37	2.4	2.44	2.45	2.46	2.49	2.44	2.46	2.46	

19 12.27 6.91 7.65 7.16 7.03 7.16 5.89 6.39

July. Futures price quotations from the Chicago Board of Trade, Thursday settlement,

price. For example, the data entry for May 1991 (table A-1, line 2) represents the May 16, 1991 settlement price of the July 1991 corn contract. Correspondingly, the entry for June 1991 (table A-1, line 2) represents the May 16, 1991 settlement price of the July 1991 contract. Lastly, the entry for July and August 1991 (table A-1, line 2) is the May 16th settlement price of the September 1991 contract.

The nearby contract settlement price was used for the month when a particular contract closed rather than the closing contract settlement price because trading activity could decline or become erratic for the closing contract thereby making the settlement price less representative. Also, a price would not exist for the remainder of the month after the contract closed.

A forecast of the farm price of corn for each month in the 1990/91 and 1991/92 marketing year (table A-1 and A-2, line 4) was computed by adding the basis (table A-1 and A-2, line 3) to the monthly futures price (table A-1 and A-2, line 2). When forecasting corn prices prior to the beginning of the season, the forecast relies solely on futures prices and historical basis levels but as the season progresses a combination of actual monthly farm prices² and forecast prices are used.

The spliced actual and forecast farm price is compiled as found in table A-1, line 6. For the present marketing year, 1990/91, 8 of the monthly prices are reported actual farm prices of corn (September through April) while the last 4 months are forecast prices. For the 1991/92 crop year (table A-2, line 6), all monthly prices are forecast and line 6 remains blank.

Finally, a weighted season-average farm price of corn is computed (table A-1 and A-2, line 7). The monthly percentage of corn marketings by producers (5-year moving average) is used to weight the monthly farm prices (table A-1 and A-2, line 8).

²/ The last published monthly price received by producers represents a mid-month price and is updated the following month.

Results

The initial forecast for 1990/91 used futures data as of May 3, 1990 and forecast a season average farm price of corn of \$2.61 per bushel (Fig. A-1). Weather concerns drove the forecast season average price to a peak of \$2.77 per bushel on June 28. The forecast 1990/91 price then declined to about \$2.21 in early September. It fluctuated between \$2.20 and \$2.30 per bushel from September 1990 through mid-February 1991. Since mid-February the forecast for the 1990/91 season average price of corn has remained between \$2.30 and \$2.35 per bushel, responding mostly to information on demand expectations.

This procedure provides a price forecast based on an aggregation of the futures market expectations prior to the beginning of the 1991/92 season in September 1991 and since then price forecasts will be based on a combination of reported actual farm prices and forecast monthly prices based on futures prices. As of May 9, 1991 the futures model forecast for the 1991/92 season average farm price of corn was \$2.39 per bushel.

Forecast Accuracy

Forecast accuracy was examined for marketing years 1986/87 through 1989/90. An absolute percentage forecast error was computed for monthly forecasts of the season average farm

Figure A-1

Model and WASDE Forecasts: U.S. 1990/91 Season-Average Price of Corn

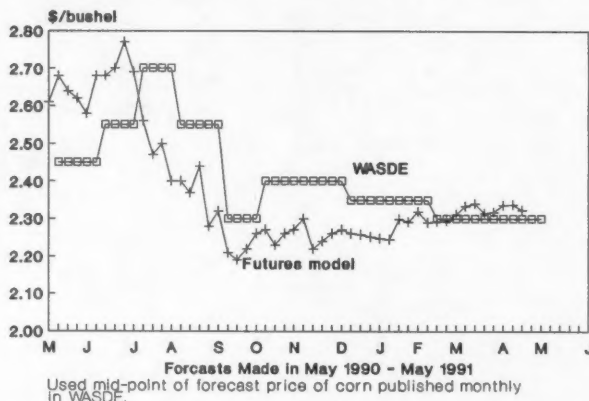
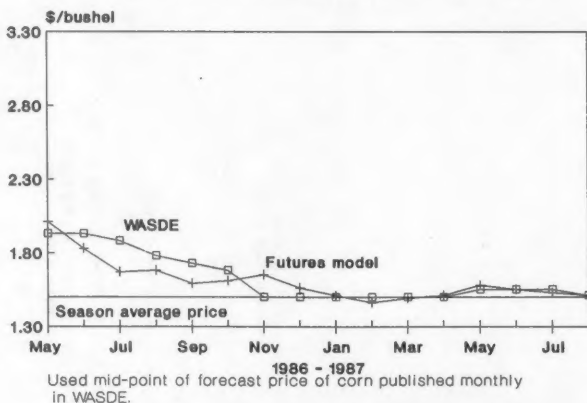


Figure A-2

Model and WASDE Monthly Forecasts: 1986/87 Season-Average Price of Corn



price of corn and a mean absolute percentage forecast error was computed for the year. The monthly futures forecast used represented the Thursday settlement price from the week the WASDE forecast was released. This futures forecast was selected in an effort to minimize differences in information between the WASDE and futures forecast.

Accuracy of the futures model forecasts over the past four years appeared reasonable. The absolute mean percentage error ranged from 5 to 8 percent as compared to WASDE's 5 to 9 percent (table A-3 and figures A-2 through A-5). As expected, the difference between the actual season average price and that forecast by the futures model generally declined as the forecast period progressed.

Summary and Conclusions

Study results suggest that the futures model forecast can provide a quick and reasonable forecast of producer prices. Such a model should provide a useful service to producers, policy analysts, and consumers. To the extent that this tool is used by farmers in decision making, it would affect marketing more than current season production decisions because by May most corn production decisions have been made.

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Figure A-3

Model and WASDE Monthly Forecasts: 1987/88 Season-Average Price of Corn

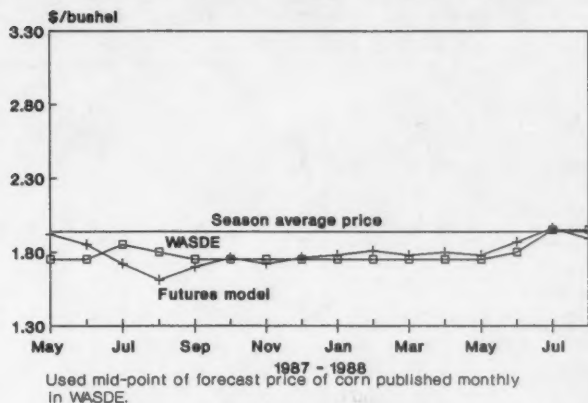


Figure A-4

Model and WASDE Forecasts: 1988/89 Season-Average Price of Corn

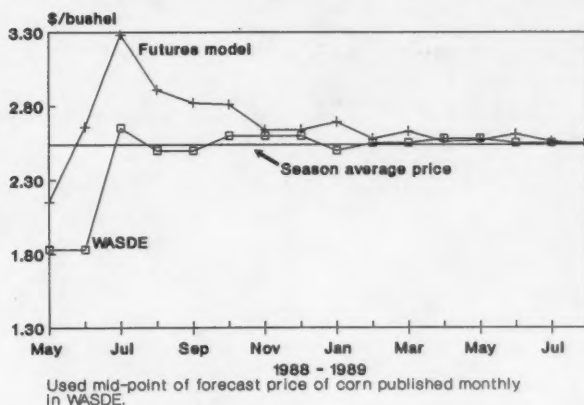


Figure A-5

Model and WASDE Monthly Forecasts: 1989/90 Season-Average Price of Corn

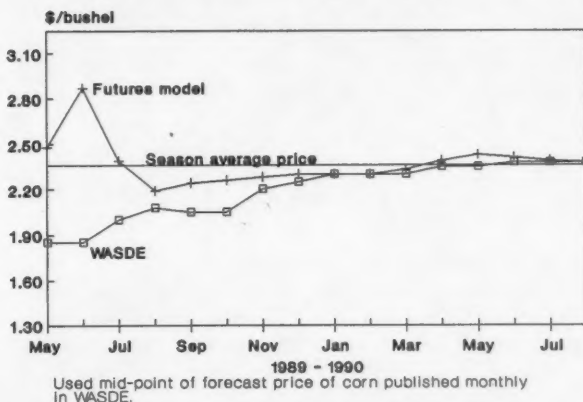


Table A-3--Forecast accuracy of corn's season average farm price, marketing year, 1986/87-1989/90

Forecast month	Marketing year and forecast method							
	1986		1987		1988		1989	
	WASDE 1/	Futures	WASDE 1/	Futures	WASDE 1/	Futures	WASDE 1/	Futures
Percentage difference between actual and forecast								
May	+ 28.7	+ 34.0	- 9.8	- 1.5	- 28.0	- 15.3	- 21.6	+ 5.1
June	+ 28.7	+ 22.0	- 9.8	- 2.6	- 28.0	+ 4.7	- 21.6	+ 21.6
July	+ 25.3	+ 11.3	- 4.6	- 10.8	+ 4.3	+ 29.1	- 15.3	+ 1.3
August	+ 18.7	+ 12.0	- 7.2	- 17.5	- 1.6	+ 14.6	- 11.9	- 7.2
September	+ 15.3	+ 6.0	- 9.8	- 11.9	- 1.6	+ 11.0	- 13.1	- 5.1
October	+ 12.0	+ 7.3	- 9.8	- 7.7	+ 2.4	+ 10.6	- 13.1	- 4.2
November	0.0	+ 10.0	- 9.8	- 10.3	+ 2.4	+ 4.9	- 6.8	- 3.4
December	0.0	+ 4.0	- 9.8	- 8.2	+ 2.4	+ 4.9	- 4.7	- 2.5
January	0.0	+ 0.7	- 9.8	- 7.2	- 1.6	+ 5.9	- 2.5	- 2.5
February	0.0	- 2.7	- 9.8	- 5.6	+ 0.4	+ 1.6	- 2.5	- 2.5
March	0.0	- 0.7	- 9.8	- 7.2	+ 0.4	+ 3.5	- 2.5	- 1.3
April	0.0	+ 0.7	- 9.8	- 6.2	+ 1.6	+ 0.8	- 0.4	+ 1.3
May	+ 3.3	+ 5.3	- 9.8	- 7.2	+ 1.6	+ 1.2	- 0.4	+ 3.0
June	+ 3.3	+ 4.0	- 7.2	- 2.6	+ 0.4	+ 2.7	+ 0.8	+ 2.1
July	+ 3.3	+ 2.0	+ 0.5	+ 2.1	+ 0.4	+ 0.8	+ 0.8	+ 1.3
August	+ 0.7	+ 0.7	+ 0.5	- 1.5	+ 0.4	0.0	+ 0.8	+ 0.8
Mean absolute percentage difference								
	8.7	7.7	8.0	6.9	4.8	6.8	7.4	4.1

1/ Used mid-point of forecast price of corn published monthly in World Agricultural Supply and Demand Estimates.

Appendix table 1--Feed grains: Marketing year supply and disappearance, a

Year 2/	Supply				Food, alcohol, and industrial
	Begin- ning stocks	Produc- tion	Imports	Total	
1984/85	39.6	236.8	0.7	277.1	31.4
1985/86	57.5	274.3	0.8	332.5	33.5
1986/87	126.4	251.6	0.7	378.7	34.2
1987/88	152.1	216.5	1.0	369.6	35.6
1988/89	133.6	149.3	1.2	284.2	36.3
1989/90	65.9	221.1	1.3	288.3	37.6
1990/91 4/	45.5	230.3	1.2	277.1	---39.7
1991/92 5/	43.6	240.1	1.3	285.0	---40.6
Area					
	Set-aside and diverted	Planted			Harvest for grain
-----Million hectares-----					
1984/85	2.1	49.5			43.2
1985/86	2.9	51.8			45.2
1986/87	7.3	48.5			41.1
1987/88	12.5	43.1			35.2
1988/89	11.1	41.2			32.6
1989/90	6.8	43.0			36.9
1990/91	6.6	41.8			36.2

1/ Aggregated data on corn, sorghum, barley, and oats. 2/ The marketing year for feed grains begins on June 1. 3/ Includes total Government loans (original and resale). 4/ Includes total Government loans (original and resale). 5/ Includes total Government loans (original and resale). 6/ Includes total Government loans (original and resale). 7/ Deficiency payments. 8/ Deficiency and diversion payments.

ce, area, and prices, 1984/85-1991/92 1/

Year and crop trial	Disappearance				Ending stocks			
	Domestic use		Exports	Total disap- pearance	Govt. owned	Privately owned 3/	Total	
	Seed	Feed and residual						
Million metric tons								
84/85	1.5	130.6	163.5	56.1	219.6	8.9	48.6	57.5
85/86	1.5	135.1	170.0	36.1	206.2	20.4	106.0	126.4
86/87	1.4	145.1	180.7	45.9	226.6	48.7	103.4	152.1
87/88	1.3	146.9	183.7	52.3	236.0	34.1	99.5	133.6
88/89	1.2	119.6	157.1	61.1	218.2	18.6	47.3	65.9
89/90	1.2	134.2	173.0	69.7	242.7	10.5	35.0	45.5
90/91		143.3	183.1	50.4	233.4	12.3	31.3	43.6
91/92		144.0	184.5	51.6	236.1	2.3	46.5	48.8
Year harvested for grain	Yield per harvested hectare		Index Average price received by farmers 6/		Government- support program Total payments to participants			
	Metric tons		1977=100		\$ million			
83/84	5.48		130		7/ 1,860			
84/85	6.07		110		7/ 2,785			
85/86	6.12		74		8/ 7,343			
86/87	6.15		96		8/ 8,461			
87/88	4.58		126		8/ 3,157			
88/89	5.99		118		7/ 3,915			
89/90	6.35				7/ 3,405			

Marketing year for corn and sorghum begins September 1; for oats and wheat (except hard red winter wheat) begins July 1. 1/ Preliminary. 2/ Preliminary. 3/ Preliminary. 4/ Preliminary. 5/ Projected. 6/ Excludes support payments.

Appendix table 2--Foreign coarse grains: Supply and disappearance, 1980/81-1991/92 1/

Year	Beginning stocks	Production	Feed	Total Disappearance	Imports	Adjusted imports 2/	Ending stocks
Million metric tons							
Corn:							
1980/81	45.8	240.1	168.4	297.7	79.1	78.1	48.9
1981/82	48.9	235.1	175.9	291.0	77.6	67.3	43.8
1982/83	43.8	230.3	174.3	281.3	73.2	63.3	39.1
1983/84	39.1	241.5	167.7	288.7	64.9	61.1	39.8
1984/85	39.8	264.0	183.6	303.4	72.5	66.6	47.4
1985/86	47.4	253.9	185.7	291.0	62.1	54.3	41.2
1986/87	41.2	265.4	193.2	307.3	61.1	56.6	37.2
1987/88	37.2	268.6	196.3	310.9	62.8	56.7	38.4
1988/89	38.4	276.7	211.6	326.8	73.4	63.8	39.7
1989/90	39.7	270.0	216.3	332.6	80.4	73.0	37.3
1990/91 3/	37.3	266.3	196.3	310.9	62.7	56.9	35.8
1991/92 4/	35.8	282.0	205.6	327.7	62.3	57.0	34.5
Sorghum:							
1980/81	6.9	44.6	23.3	50.8	12.8	14.1	8.1
1981/82	8.1	48.1	28.5	55.5	14.3	13.7	7.4
1982/83	7.4	44.0	25.2	50.5	12.3	11.6	6.1
1983/84	6.1	46.5	25.7	52.3	13.1	13.0	6.5
1984/85	6.5	44.0	26.1	52.1	12.9	13.1	6.0
1985/86	6.0	42.0	24.9	47.6	9.6	8.8	5.0
1986/87	5.0	40.6	23.3	46.4	8.1	7.8	4.2
1987/88	4.2	37.8	22.7	44.9	8.7	8.3	3.1
1988/89	3.1	40.3	24.1	47.0	10.9	10.8	4.3
1989/90	4.3	39.1	21.7	46.6	9.3	8.9	4.5
1990/91 3/	4.5	38.7	21.4	44.9	7.8	7.6	3.7
1991/92 4/	3.7	38.3	21.1	44.5	7.8	7.3	2.9
Barley:							
1980/81	16.9	155.4	107.5	156.7	16.3	13.8	17.1
1981/82	17.1	144.9	105.4	149.6	20.4	13.9	14.4
1982/83	14.4	155.6	107.8	152.9	17.2	13.1	17.9
1983/84	17.9	153.6	115.4	160.4	20.3	16.4	12.9
1984/85	12.9	162.5	115.8	157.7	23.1	17.9	19.1
1985/86	19.1	165.1	120.2	161.9	22.1	18.2	22.6
1986/87	22.6	169.1	124.7	167.8	24.0	18.4	26.7
1987/88	26.7	169.8	127.2	173.7	20.6	15.7	25.2
1988/89	25.2	161.7	118.6	162.3	20.3	16.6	26.1
1989/90	26.1	161.0	120.1	164.8	20.2	15.6	23.9
1990/91 3/	23.9	176.7	127.9	175.2	20.3	15.7	27.0
1991/92 4/	27.0	168.1	125.8	169.3	19.8	16.9	27.4
Total coarse grains: 5/							
1980/81	77.4	534.1	342.0	600.0	110.3	108.1	81.5
1981/82	81.5	520.3	351.7	588.3	114.5	97.5	72.8
1982/83	72.8	533.6	356.9	585.5	104.0	89.5	73.2
1983/84	73.2	551.1	364.5	608.9	100.2	92.8	70.8
1984/85	70.8	578.1	377.3	618.5	111.1	99.7	85.9
1985/86	85.9	568.3	386.8	608.3	95.7	82.3	81.2
1986/87	81.2	579.8	393.9	624.8	95.1	83.0	81.4
1987/88	81.4	577.8	398.3	630.8	94.0	81.8	79.5
1988/89	79.5	582.7	403.1	639.4	106.3	92.7	82.8
1989/90	82.8	579.0	412.5	651.3	112.0	98.9	78.9
1990/91 3/	78.9	593.4	401.1	640.4	92.6	81.7	81.6
1991/92 4/	81.6	590.4	402.3	642.5	91.5	82.6	79.7

1/ Aggregated on basis of local marketing years, except for adjusted imports. 2/ Based on Oct./Sept. trade year and excludes intra-EC trade. 3/ Forecast. 4/ Projected. 5/ Includes oats, rye, millet, and mixed grains.

Source: Compiled from World Grain Situation and Outlook, Foreign Agricultural Service, and USDA data.

Appendix table 3--Corn: Marketing year supply and disappearance, area, and

Year beginning September 1	Supply				Food, alcohol, and industrial
	Begin- ning stocks	Produc- tion	Imports	Total	
1984/85	1,006.3	7,672.1	1.7	8,680.1	1,070.0
1985/86	1,648.2	8,875.5	10.0	10,533.7	1,140.0
1986/87	4,039.5	8,225.8	1.7	12,267.0	1,175.0
1987/88	4,881.7	7,131.3	3.4	12,016.4	1,212.0
1988/89	4,259.1	4,928.7	2.8	9,190.5	1,232.4
1989/90	1,930.4	7,525.5	1.9	9,457.8	1,271.0
1990/91 2/	1,344.5	7,933.1	2.0	9,279.5	1,310.6
1991/92 3/	1,399.5	8,275.0	2.0	9,676.5	---1,360

	Area			Yield per harvested acre	Rece- by farmer
	Set-aside and diverted	Planted	Harvested for grain		
	-----Million acres-----			Bushels	---
1984/85	3.9	80.5	71.9	106.7	2.0
1985/86	5.4	83.4	75.2	118.0	2.0
1986/87	14.3	76.6	68.9	119.4	1.5
1987/88	23.1	66.2	59.5	119.8	1.5
1988/89	20.5	67.7	58.3	84.6	2.5
1989/90	10.8	72.2	64.7	116.3	2.5
1990/91	11.1	74.2	67.0	118.5	2.25-

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary.
5/ Deficiency payments. 6/ Deficiency and diversion payments. 7/ Deficiency

and prices, 1984/85-1991/92

Disappearance						Ending stocks Aug. 31		
Domestic use	Seed	Feed and residual	Total	Exports	Total disappearance	Govt. owned	Privately owned 1/	Total
Million bushels								
21.2	4,090.5	5,181.7	1,850.2	7,031.9	224.9	1,423.3	1,648.2	
19.5	4,107.4	5,266.9	1,227.3	6,494.2	545.7	3,493.8	4,039.5	
16.7	4,701.2	5,892.9	1,492.4	7,385.3	1,443.2	3,438.5	4,881.7	
17.2	4,811.7	6,040.9	1,716.4	7,757.3	835.0	3,424.1	4,259.1	
18.4	3,980.6	5,231.7	2,028.5	7,260.1	362.5	1,567.9	1,930.4	
18.9	4,454.6	5,744.6	2,368.8	8,113.3	233.0	1,111.5	1,344.5	
19.4	4,850.0	6,180.0	1,700.0	7,880.0	350.0	1,049.5	1,399.5	
1,360.0---	4,950.0	6,310.0	1,750.0	8,060.0			1,617.0	

Average prices				Government-support program		
Received by farmers 4/	St. Louis No. 2 yellow	Omaha No. 2 yellow	Gulf Ports No. 2 yellow	National average loan rate	Target price	Total payments to participants
2.63	2.81	2.65	3.00	2.55	3.03	5/ 1,654
2.23	2.37	2.25	2.52	2.55	3.03	5/ 2,479
1.50	1.68	1.53	1.83	1.92	3.03	6/ 6,327
1.94	2.19	1.98	2.38	1.82	3.03	6/ 7,388
2.54	2.73	2.49	2.93	1.77	2.93	7/ 3,687
2.30	2.59	2.41	2.84	1.65	2.84	7/ 3,508
2.25-2.35				1.57	2.75	7/ 3,015

Summary. 3/ Projected. 4/ Excludes support payments, efficiency, diversion, and disaster payments.

Appendix table 4--Sorghum: Marketing year supply and disappearance, area, and

Year beginning September 1	Supply				Food, alcohol, and industrial
	Begin- ning stocks	Produc- tion	Imports	Total	
1984/85	287.4	866.2	0.1	1,153.7	15.3
1985/86	300.2	1,120.3	---	1,420.5	26.0
1986/87	551.0	938.9	---	1,489.9	10.4
1987/88	743.3	730.8	---	1,474.1	23.5
1988/89	662.7	576.7	---	1,239.4	20.5
1989/90	439.5	615.4	0.2	1,055.1	13.6
1990/91 2/	219.8	571.5	---	791.2	---13.1---
1991/92 3/	118.0	640.0	---	758.0	---15.0---

	Area			Yield per harvested acre	Received by farmers
	Set-aside and diverted	Planted	Harvested for grain		
	-----Million acres-----			Bushels	-----
1984/85	0.6	17.3	15.4	56.4	4.14
1985/86	0.9	18.3	16.8	66.8	3.45
1986/87	2.7	15.3	13.9	67.7	2.45
1987/88	4.4	11.8	10.5	69.4	3.04
1988/89	3.9	10.3	9.0	63.8	4.05
1989/90	3.3	12.6	11.1	55.4	3.75
1990/91	3.1	10.5	9.1	62.9	3.66-3.8

--- = Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary.
5/ Deficiency payments. 6/ Deficiency and diversion payments. 7/ Deficiency

Appendix table 5--Barley: Marketing year supply and disappearance, area, and

Year beginning June 1	Supply				Food, alcohol, and industrial
	Begin- ning stocks	Produc- tion	Imports	Total	
1984/85	189.4	598.0	7.5	794.9	149.0
1985/86	247.4	590.2	6.2	843.8	147.2
1986/87	327.2	608.5	6.6	942.3	156.1
1987/88	336.3	521.5	11.3	869.1	158.3
1988/89	321.1	290.0	10.5	621.6	164.7
1989/90	196.4	404.2	13.1	613.7	165.4
1990/91 2/	160.8	418.9	10.0	589.7	---178.0-
1991/92 3/	127.0	425.0	10.0	562.0	---175.0-

	Area			Yield per harvested acre	Receiv- by farmers
	Set-aside and diverted	Planted	Harvested for grain		
	-----Million acres-----			Bushels	----
1984/85	0.5	12.0	11.2	53.4	2.25
1985/86	0.7	13.2	11.6	51.0	1.98
1986/87	2.0	13.1	12.0	50.8	1.61
1987/88	2.9	11.0	10.0	52.4	1.81
1988/89	2.8	9.8	7.6	38.0	2.80
1989/90	2.3	9.1	8.3	48.6	2.41
1990/91	2.8	8.2	7.5	55.9	2.13

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary March 1987, shifted to Duluth. 6/ Deficiency payments. 7/ Deficiency and

ra, and prices, 1984/85-1991/92

Disappearance						Ending stocks May 31		
Domestic use	Seed	Feed and residual	Total	Exports	Total disappearance	Govt. owned	Privately owned 1/	Total
Million bushels								
	21.4	305.5	475.9	71.6	547.5	15.6	231.8	247.4
	21.3	328.3	496.8	19.8	516.6	57.4	269.8	327.2
	17.9	298.4	472.4	133.6	606.0	75.5	260.8	336.3
	15.7	253.1	427.1	120.9	548.0	50.1	271.0	321.1
	15.0	166.2	345.9	79.3	425.2	30.4	166.0	196.4
	13.4	188.6	368.4	84.5	452.9	19.3	141.5	160.8
78.0---		199.5	377.5	85.0	462.7	7.0	120.0	127.0
75.0---		175.0	350.0	85.0	435.0			127.0

Average prices				Government-support program		
received by farmers 4/	No. 2 or better feed 5/	No. 3 or better malting	Portland No. 2	National average loan rate	Target price	Total payments to participants
\$/bu.				\$ million		
2.29	2.09	2.55	2.59	2.08	2.60	6/ 50
1.98	1.53	2.24	2.23	2.08	2.60	6/ 159
1.61	1.44	1.89	1.97	1.56	2.60	7/ 351
1.81	1.78	2.04	2.09	1.49	2.60	7/ 337
2.80	2.32	4.11	2.74	1.44	2.51	8/ 164
2.42	2.20	3.20	2.64	1.34	2.43	8/ 71
2.13				1.28	2.36	8/ 59

inary. 3/ Projected. 4/ Excludes support payments. 5/ Starting
and diversion payments. 8/ Deficiency, diversion and disaster payments.

Appendix table 6--Oats: Marketing year supply and disappearance, area, and

Year beginning June 1	Supply				Food, alcohol, and industrial
	Begin- ning stocks	Produc- tion	Imports	Total	
1984/85	180.9	473.7	33.6	688.2	41.0
1985/86	179.9	518.5	27.2	725.7	44.0
1986/87	183.7	385.0	32.4	601.1	45.0
1987/88	132.7	373.7	45.7	552.1	49.8
1988/89	112.0	217.6	62.9	392.5	72.7
1989/90	98.3	373.6	65.8	537.7	91.6
1990/91 2/	156.9	357.1	65.0	579.1	---120.2
1991/92 3/	159.0	300.0	70.0	529.0	---125.2

	Area			Yield per harvested acre	Receiv- by farmers
	Set-aside and diverted	Planted	Harvested for grain		
	-----Million acres-----			Bushels	---
1984/85	0.1	12.4	8.2	58.0	1.6
1985/86	0.1	13.3	8.2	63.7	1.2
1986/87	0.5	14.7	6.9	56.3	1.2
1987/88	0.8	17.9	6.9	54.3	1.5
1988/89	0.3	13.9	5.5	39.3	2.6
1989/90	0.3	12.1	6.9	54.4	1.4
1990/91	0.2	10.4	5.9	60.1	1.1

NA = Not available.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary.
6/ Deficiency and diversion payments. 7/ Deficiency, diversion and disaster

, and prices, 1984/85-1991/92

Disappearance					Ending stocks May 31			
Domestic use	Seed	Feed and residual	Total	Exports	Total disappearance	Govt. owned	Privately owned 1/	Total
and al								
Million bushels								
	31.2	435.6	507.8	0.5	508.3	1.4	178.5	179.9
	32.5	464.2	540.7	1.2	541.9	1.9	181.8	183.7
	38.0	384.5	467.5	0.9	468.4	3.5	129.2	132.7
	31.6	358.2	439.6	0.5	440.1	3.5	108.5	112.0
	27.1	193.8	293.6	0.6	294.2	2.4	95.9	98.3
	23.0	265.4	380.0	0.8	380.8	0.7	156.2	156.9
-120.0---		299.2	419.2	0.9	420.1	0.0	159.0	159.0
-125.0---		275.0	400.0	1.0	401.0	0.0	128.0	128.0

Received by farmers 4/	Average prices			Government support program		
	Minneapolis No. 2 white, heavy	Portland No. 2 white, heavy	Toledo No. 2	National average loan rate	Target price	Total payments to participants
\$/bu.				\$ million		
1.69	1.81	2.12	1.92	1.31	1.60	NA
1.23	1.31	1.60	1.08	1.31	1.60	5/ 8
1.21	1.46	1.53	1.20	0.99	1.60	6/ 32
1.56	1.92	1.76	1.68	0.94	1.60	6/ 27
2.61	2.80	2.24	2.26	0.90	1.55	7/ 47
1.49	1.64	1.63	1.40	0.85	1.50	7/ 3
1.13				0.81	1.45	6/ 9

minary. 3/ Projected. 4/ Excludes support payments. 5/ Deficiency payments.
isaster payments.

Appendix table 7--Corn: Marketing year supply and disappearance, specified

Year beginning September 1	Supply				Food, alcohol, and industrial	Se
	Begin- ning stocks	Produc- tion	Imports	Total		
----- Million						
1985/86:						
Sept.-Nov.	1,648.2	8,875.5	0.9	10,524.6	278.0	0
Dec.-Feb.	8,614.7	---	1.0	8,615.7	264.0	0
Mar.-May	6,587.1	---	2.2	6,589.3	293.0	16
June-Aug.	4,990.0	---	5.9	4,995.9	305.0	3
Mkt. year	1,648.2	8,875.5	10.0	10,533.7	1,140.0	19
1986/87:						
Sept.-Nov.	4,039.5	8,225.8	0.7	12,266.0	280.0	0
Dec.-Feb.	10,305.5	---	0.2	10,305.7	270.0	0
Mar.-May	8,248.2	---	0.4	8,248.6	310.0	16
June-Aug.	6,332.2	---	0.4	6,332.6	315.0	0
Mkt. year	4,039.5	8,225.8	1.7	12,267.0	1,175.0	16
1987/88:						
Sept.-Nov.	4,881.7	7,131.3	0.5	12,013.5	292.0	0
Dec.-Feb.	9,771.0	---	0.7	9,771.7	282.0	0
Mar.-May	7,635.6	---	1.4	7,637.0	315.0	16
June-Aug.	5,839.2	---	0.8	5,840.0	323.0	0
Mkt. year	4,881.7	7,131.3	3.4	12,016.4	1,212.0	17
1988/89:						
Sept.-Nov.	4,259.1	4,928.7	0.6	9,188.4	295.0	0
Dec.-Feb.	7,071.6	---	0.6	7,072.2	285.0	0
Mar.-May	5,203.9	---	1.2	5,205.1	322.2	16
June-Aug.	3,419.3	---	0.4	3,419.7	330.2	0
Mkt. year	4,259.1	4,928.7	2.8	9,190.6	1,232.4	16
1989/90:						
Sept.-Nov.	1,930.4	7,525.5	0.6	9,456.6	281.0	0
Dec.-Feb.	7,082.1	---	0.4	7,082.5	291.0	0
Mar.-May	4,812.4	---	0.6	4,813.0	348.0	16
June-Aug.	2,843.2	---	0.2	2,843.4	351.0	0
Mkt. year 2/	1,930.4	7,525.5	1.9	9,457.8	1,271.0	16
1990/91:						
Sept.-Nov.	1,344.5	7,933.1	0.9	9,278.4	307.0	0
Dec.-Feb.	6,940.3	---	0.3	6,940.6	305.0	0
Mar.-May						
June-Aug.						
Mkt. year 3/	1,344.5	7,933.1	2.0	9,279.6	1,310.6	1

--- = Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary.

ified periods, 1985/86-1990/91

Disappearance					Ending stocks		
Domestic use			Exports	Total disappearance	Govt. owned	Privately owned 1/	Total
Seed	Feed and residual	Total					
million bushels							
0.0	1,217.1	1,495.1	414.8	1,909.9	388.6	8,226.1	8,614.7
0.0	1,304.4	1,568.4	460.2	2,028.6	509.4	6,077.7	6,587.1
16.1	1,088.8	1,397.9	201.4	1,599.3	550.9	4,439.1	4,990.0
3.4	497.1	805.5	150.9	956.4	545.7	3,493.8	4,039.5
19.5	4,107.4	5,266.9	1,227.3	6,494.2	545.7	3,493.8	4,039.5
0.0	1,362.3	1,642.3	318.2	1,960.5	968.2	9,337.3	10,305.5
0.0	1,474.7	1,744.7	312.8	2,057.5	1,362.2	6,886.0	8,248.2
16.4	1,093.9	1,420.3	496.1	1,916.4	1,491.5	4,840.7	6,332.2
0.3	770.3	1,085.6	365.3	1,450.9	1,443.2	3,438.5	4,881.7
16.7	4,701.2	5,892.9	1,492.4	7,385.3	1,443.2	3,438.5	4,881.7
0.0	1,554.9	1,846.9	395.6	2,242.5	1,683.4	8,087.6	9,771.0
0.0	1,449.4	1,731.4	404.7	2,136.1	1,767.7	5,867.9	7,635.6
16.7	956.4	1,288.1	509.7	1,797.8	1,304.9	4,534.3	5,839.2
0.5	851.0	1,174.5	406.4	1,580.9	835.0	3,424.1	4,259.1
17.2	4,811.7	6,040.9	1,716.4	7,757.3	835.0	3,424.1	4,259.1
0.0	1,351.0	1,646.0	470.8	2,116.8	611.0	6,460.6	7,071.6
0.0	1,080.7	1,365.7	502.6	1,868.3	465.0	4,738.9	5,203.9
16.7	855.3	1,194.2	591.6	1,785.8	417.7	3,001.6	3,419.3
1.7	694.0	1,025.9	463.4	1,489.3	362.5	1,567.9	1,930.4
18.4	3,981.0	5,231.8	2,028.4	7,260.2	362.5	1,567.9	1,930.4
0.0	1,510.4	1,791.4	583.1	2,374.5	628.2	6,453.9	7,082.1
0.0	1,297.4	1,588.3	681.8	2,270.1	537.2	4,275.2	4,812.4
16.1	1,004.4	1,368.5	601.3	1,969.8	299.3	2,543.9	2,843.2
2.8	642.5	996.3	502.6	1,499.0	233.0	1,111.5	1,344.5
18.9	4,454.7	5,744.6	2,368.8	8,113.4	233.0	1,111.5	1,344.5
0.0	1,648.3	1,955.3	382.8	2,338.1	205.9	6,734.4	6,940.3
0.0	1,376.2	1,681.2	470.7	2,151.9			4,788.7
19.4	4,850.0	6,180.0	1,700.0	7,880.0	425.0	975.0	1,400.0

minary. 3/ Projected.

Appendix table 8--Sorghum: Marketing year supply and disappearance, 1985/86

Year beginning September 1	Supply				Food, alcohol, and industrial	Disappearance
	Begin- ning stocks	Produc- tion	Imports	Total		
1985/86:						
Sept.-Nov.	300.2	1,120.3	0.0	1,420.5	7.6	0.0
Dec.-Feb.	1,112.2	---	0.0	1,112.2	7.9	0.0
Mar.-May	828.4	---	0.0	828.4	6.6	0.0
June-Aug.	630.0	---	0.0	630.0	3.9	0.0
Mkt. year	300.2	1,120.3	0.0	1,420.5	26.0	1.0
1986/87:						
Sept.-Nov.	551.0	938.9	0.0	1,489.9	2.8	0.0
Dec.-Feb.	1,259.2	---	0.0	1,259.2	2.9	0.0
Mar.-May	1,017.7	---	0.0	1,017.7	2.4	0.0
June-Aug.	835.0	---	0.0	835.0	2.2	0.0
Mkt. year	551.0	938.9	0.0	1,489.9	10.4	1.0
1987/88:						
Sept.-Nov.	743.3	730.8	0.0	1,474.1	4.9	0.0
Dec.-Feb.	1,252.4	---	0.0	1,252.4	5.1	0.0
Mar.-May	1,011.1	---	0.0	1,011.1	4.2	0.0
June-Aug.	807.8	---	0.0	807.9	9.3	0.0
Mkt. year	743.3	730.8	0.0	1,474.1	23.5	1.0
1988/89:						
Sept.-Nov.	662.7	576.7	0.0	1,239.3	5.9	0.0
Dec.-Feb.	997.7	---	0.0	997.7	6.1	0.0
Mar.-May	725.1	---	0.0	725.1	3.0	0.0
June-Aug.	559.0	---	0.0	559.0	3.5	0.0
Mkt. year	662.7	576.7	0.0	1,239.3	20.5	1.0
1989/90:						
Sept.-Nov.	439.5	615.4	0.0	1,054.9	3.6	0.0
Dec.-Feb.	775.2	---	0.0	775.2	4.4	0.0
Mar.-May	513.6	---	0.1	513.7	2.5	0.0
June-Aug.	335.0	---	0.1	335.1	3.1	0.0
Mkt. year 2/	439.5	615.4	0.2	1,055.2	13.6	1.0
1990/91:						
Sept.-Nov.	219.8	571.5	0.0	791.2	3.7	0.0
Dec.-Feb.	512.3	---	0.0	512.3	3.5	0.0
Mar.-May	---	---	---	---	---	---
June-Aug.	---	---	---	---	---	---
Mkt. year 3/	219.8	571.5	0.0	791.2	12.0	1.0

--- = Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary

1985/86-1990/91

Disappearance					Ending stocks		
Domestic use	Feed and residual	Total	Exports	Total disappearance	Govt. owned	Privately owned 1/	Total
Seed							
Million bushels							
0.0	230.4	238.0	70.2	308.2	138.6	973.6	1,112.2
0.0	232.8	240.7	43.1	283.9	175.2	653.2	828.4
1.2	163.7	171.4	26.9	198.3	181.4	448.6	630.0
0.5	36.9	41.3	37.7	79.0	207.2	343.8	551.0
1.7	663.8	691.5	178.0	869.5	207.2	343.8	551.0
0.0	180.4	183.3	47.5	230.7	292.1	967.1	1,259.2
0.0	182.3	185.3	56.2	241.5	364.9	652.8	1,017.7
1.0	128.2	131.6	51.2	182.8	400.4	434.6	835.0
0.6	45.3	48.1	43.5	91.6	408.9	334.4	743.3
1.6	536.2	548.2	198.3	746.5	408.9	334.4	743.3
0.0	171.3	176.2	45.5	221.7	465.3	787.1	1,252.4
0.0	173.1	178.2	63.1	241.3	545.5	465.6	1,011.1
0.8	121.2	126.2	77.1	203.3	511.4	296.4	807.8
0.5	89.6	99.4	45.8	145.2	463.6	199.1	662.7
1.3	555.1	579.9	231.6	811.5	463.6	199.1	662.7
0.0	171.3	177.1	64.5	241.6	432.9	564.8	997.7
0.0	173.1	179.2	93.5	272.6	396.4	328.7	725.1
0.8	80.1	86.0	80.1	166.1	363.8	195.2	559.0
0.7	43.1	47.4	72.1	119.5	340.9	98.6	439.5
1.5	467.6	489.6	310.2	799.8	340.9	98.6	439.5
0.0	185.8	189.4	90.3	279.7	314.6	460.6	775.2
0.0	176.0	180.4	81.2	261.6	223.0	290.6	513.6
0.6	94.4	97.5	81.3	178.7	190.2	144.8	335.0
0.5	61.0	64.6	50.8	115.3	162.5	57.3	219.8
1.1	517.2	531.9	303.5	835.4	162.5	57.3	219.8
0.0	218.6	222.3	56.6	278.9	157.7	354.6	512.3
0.0	115.1	118.6	61.2	179.9			332.5
1.1	450.0	463.1	210.0	673.1	50.0	68.1	118.1

inary. 3/ Projected.

Appendix table 9--Barley: Marketing year supply and disappearance, specific

Year beginning June 1	Supply				Food, alcohol, and industrial	Domestic use
	Begin- ning stocks	Produc- tion	Imports	Total		
Million						
1985/86:						
June-Aug.	247.4	590.2	0.7	838.3	39.1	0
Sept.-Nov.	698.3	---	1.3	699.6	33.7	1
Dec.-Feb.	572.1	---	2.5	574.6	33.7	1
Mar.-May	464.7	---	1.7	466.4	40.7	18
Mkt. year	247.4	590.2	6.2	843.8	147.2	21
1986/87:						
June-Aug.	327.2	608.5	1.3	937.0	42.2	0
Sept.-Nov.	786.8	---	1.0	787.8	36.5	1
Dec.-Feb.	634.3	---	1.2	635.5	35.8	1
Mar.-May	499.3	---	3.1	502.4	41.6	15
Mkt. year	327.2	608.5	6.6	942.3	156.1	17
1987/88:						
June-Aug.	336.3	521.5	1.1	858.9	42.8	0
Sept.-Nov.	725.0	---	2.9	727.9	37.1	1
Dec.-Feb.	582.4	---	4.3	586.7	36.3	1
Mar.-May	458.5	---	3.0	461.5	42.1	13
Mkt. year	336.3	521.5	11.3	869.1	158.3	15
1988/89:						
June-Aug.	321.1	290.0	2.8	613.9	45.2	0
Sept.-Nov.	450.4	---	2.2	452.6	39.4	1
Dec.-Feb.	372.1	---	2.8	374.9	37.2	1
Mar.-May	280.6	---	2.7	283.3	42.9	12
Mkt. year	321.1	290.0	10.5	621.6	164.7	15
1989/90:						
June-Aug.	196.4	404.2	3.6	604.2	46.7	0
Sept.-Nov.	417.9	---	2.0	419.9	40.1	1
Dec.-Feb.	350.6	---	3.3	353.9	38.0	1
Mar.-May	252.7	---	4.2	256.9	40.6	1
Mkt. year 2/	196.4	404.2	13.1	613.7	165.4	1
1990/91:						
June-Aug.	160.8	418.9	1.0	580.7	47.0	0
Sept.-Nov.	410.9	---	1.3	412.1	41.0	1
Dec.-Feb.	305.7	---	4.2	309.9	36.0	1
Mar.-May						
Mkt. year 3/	160.8	418.9	10.0	589.7	----	178.0

--- = Not applicable.

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary

pecified periods, 1985/86-1990/91

Disappearance					Ending stocks		
Domestic use- Seed	Feed and residual	Total	Exports	Total disap- pearance	Govt. owned	Privately owned 1/	Total
million bushels							
0.0	90.5	129.6	10.4	140.0	20.0	678.3	698.3
1.5	85.0	120.2	7.3	127.5	36.1	536.0	572.1
1.7	73.2	108.6	1.3	109.9	47.3	417.4	464.7
18.1	79.6	138.4	0.8	139.2	57.4	269.8	327.2
21.3	328.3	496.8	19.8	516.6	57.4	269.8	327.2
0.0	94.5	136.7	13.5	150.2	56.0	730.8	786.8
1.3	72.2	110.0	43.5	153.5	66.2	568.1	634.3
1.4	67.2	104.4	31.8	136.2	75.2	424.1	499.3
15.2	64.5	121.3	44.8	166.1	75.5	260.8	336.3
17.9	298.4	472.4	133.6	606.0	75.5	260.8	336.3
0.0	74.3	117.1	16.8	133.9	74.9	650.1	725.0
1.1	64.8	103.0	42.5	145.5	79.5	502.9	582.4
1.3	57.6	95.2	33.0	128.2	57.0	401.5	458.5
13.3	56.4	111.8	28.6	140.4	50.1	271.0	321.1
15.7	253.1	427.1	120.9	548.0	50.1	271.0	321.1
0.0	92.5	137.7	25.8	163.5	35.9	414.5	450.4
1.1	27.4	67.9	12.6	80.5	35.9	336.2	372.1
1.2	40.6	79.0	15.3	94.3	34.1	246.5	280.6
12.7	5.7	61.3	25.6	86.9	30.4	166.0	196.4
15.0	166.2	345.9	79.3	425.2	30.4	166.0	196.4
0.0	113.0	159.7	26.5	186.2	36.6	381.3	417.9
1.0	11.0	52.1	17.2	69.3	36.3	314.3	350.6
1.1	39.3	78.4	22.8	101.2	32.1	220.6	252.7
11.3	26.3	78.2	17.9	96.1	19.0	141.8	160.8
13.4	189.6	368.4	84.5	452.9	19.0	141.8	160.8
0.0	92.0	139.0	30.9	169.8	14.3	396.6	410.9
1.0	39.0	81.0	25.4	106.4	12.1	293.6	305.7
1.1	43.8	80.9	18.6	99.5	9.6	200.8	210.4
8.0----	199.5	377.5	85.2	462.7	9.0	118.0	127.0

minary. 3/ Projected.

Appendix table 10--Oats: Marketing year supply and disappearance, 1985/86-

Year beginning June 1	Supply				Food, alcohol, and industrial	Disappearance
	Begin- ning stocks	Produc- tion	Imports	Total		
1985/86:						
June-Aug.	179.9	518.5	4.4	702.9	12.8	0.0
Sept.-Nov.	554.1	---	4.2	558.3	11.2	3.0
Dec.-Feb.	424.8	---	8.9	433.7	10.9	1.0
Mar.-May	312.5	---	9.7	322.2	9.0	27.0
Mkt. year	179.9	518.5	27.2	725.7	44.0	32.0
1986/87:						
June-Aug.	183.7	385.0	8.7	577.4	13.1	0.0
Sept.-Nov.	451.6	---	4.8	456.4	11.5	4.0
Dec.-Feb.	342.2	---	9.2	351.4	11.1	1.0
Mar.-May	248.5	---	9.6	258.2	9.3	32.0
Mkt. year	183.7	385.0	32.4	601.1	45.0	38.0
1987/88:						
June-Aug.	132.7	373.7	7.0	513.4	14.5	0.0
Sept.-Nov.	393.9	---	8.1	402.0	12.7	3.0
Dec.-Feb.	294.2	---	15.8	310.0	12.3	0.0
Mar.-May	212.2	---	14.8	227.1	10.2	20.0
Mkt. year	132.7	373.7	45.7	552.1	49.8	33.0
1988/89:						
June-Aug.	112.0	217.6	12.3	341.8	21.2	0.0
Sept.-Nov.	263.8	---	11.9	275.7	18.6	3.0
Dec.-Feb.	204.4	---	20.1	224.5	18.0	0.0
Mar.-May	159.9	---	18.6	178.5	15.0	21.0
Mkt. year	112.0	217.6	62.9	392.5	72.7	24.0
1989/90:						
June-Aug.	98.3	373.6	17.0	488.9	26.6	0.0
Sept.-Nov.	373.3	---	17.5	390.8	23.3	3.0
Dec.-Feb.	287.3	---	15.7	303.0	22.6	0.0
Mar.-May	214.7	---	15.7	230.4	19.1	11.0
Mkt. year 1/	98.3	373.6	65.8	537.7	91.6	24.0
1990/91:						
June-Aug.	156.9	357.1	17.5	531.6	28.7	0.0
Sept.-Nov.	351.7	---	11.7	363.4	24.7	3.0
Dec.-Feb.	294.1	---	18.2	312.3	24.7	0.0
Mar.-May	---	---	---	---	---	---
Mkt. year 2/	156.9	357.1	65.0	579.1	---	120.0

--- = Not applicable.

1/ Preliminary. 2/ Projected.

5/86-1990/91

Disappearance					Ending stocks		
Domestic use			Exports	Total disappearance	Govt. owned	Privately owned	Total
Seed	Feed and residual	Total					
Million bushels							
0.0	135.8	148.7	0.1	148.8	1.5	552.6	554.1
3.9	118.1	133.2	0.3	133.5	1.9	422.9	424.8
1.0	109.3	121.2	0.1	121.2	2.0	310.5	312.5
27.6	101.0	137.7	0.8	138.4	1.9	181.8	183.7
32.5	464.2	540.7	1.2	541.9	1.9	181.8	183.7
0.0	112.5	125.6	0.2	125.9	2.4	449.2	451.6
4.6	97.8	113.9	0.3	114.2	3.2	339.0	342.2
1.1	90.5	102.8	0.1	102.9	3.6	244.9	248.5
32.3	83.7	125.2	0.3	125.5	3.5	129.2	132.7
38.0	384.5	467.5	0.9	468.4	3.5	129.2	132.7
0.0	104.8	119.3	0.2	119.5	3.3	390.6	393.9
3.8	91.1	107.6	0.1	107.8	3.4	290.8	294.2
0.9	84.3	97.6	0.1	97.7	3.4	208.8	212.2
26.9	77.9	115.0	0.1	115.1	3.5	108.5	112.0
31.6	358.2	439.6	0.5	440.1	3.5	108.5	112.0
0.0	56.7	77.9	0.2	78.1	3.0	260.8	263.8
3.3	49.3	71.1	0.1	71.3	2.5	201.9	204.4
0.8	45.6	64.4	0.2	64.6	2.6	157.3	159.9
23.0	42.2	80.1	0.1	80.2	2.4	95.9	98.3
27.1	193.8	293.6	0.6	294.2	2.4	95.9	98.3
0.0	88.7	115.3	0.2	115.6	1.3	372.0	373.3
2.8	77.1	103.2	0.3	103.5	1.2	286.1	287.3
0.7	64.8	88.1	0.2	88.2	1.1	213.6	214.7
19.5	34.7	73.3	0.2	73.5	0.7	156.2	156.9
23.0	265.4	380.0	0.8	380.8	0.7	156.2	156.9
0.0	151.0	179.7	0.2	179.9	0.6	351.1	351.7
2.7	41.7	69.1	0.2	69.3	0.6	293.5	294.1
0.6	57.5	82.8	0.2	82.9	0.5	228.9	229.4
20.0---	299.2	419.2	0.9	420.1	0.0	159.0	159.0

Appendix table 11--Average prices received by farmers, United States, by month, and loan rate, 1982-90 1/

Year	Sept	Oct	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 2/	May	June	July	Aug.	Average 3/	Loan rate
Corn:														
\$/bu.														
1982	2.15	1.98	2.13	2.26	2.36	2.56	2.71	2.95	3.03	3.04	3.13	3.35	2.55	2.55
1983	3.32	3.15	3.17	3.15	3.15	3.11	3.21	3.32	3.34	3.36	3.30	3.12	3.21	2.65
1984	2.90	2.65	2.55	2.56	2.64	2.62	2.67	2.70	2.68	2.64	2.60	2.44	2.63	2.55
1985	2.29	2.11	2.21	2.29	2.33	2.32	2.29	2.30	2.39	2.32	2.00	1.73	2.23	2.55
1986	1.45	1.40	1.47	1.50	1.48	1.42	1.47	1.52	1.66	1.69	1.60	1.47	1.50	1.92
1987	1.49	1.55	1.61	1.72	1.77	1.83	1.86	1.88	1.94	2.41	2.72	2.65	1.94	1.82
1988	2.60	2.58	2.51	2.53	2.60	2.59	2.60	2.56	2.58	2.52	2.47	2.27	2.54	1.77
1989	2.29	2.22	2.24	2.27	2.31	2.32	2.37	2.51	2.62	2.63	2.62	2.51	2.36	1.65
1990	2.32	2.19	2.16	2.22	2.27	2.32	2.39	2.44					2.30	1.57
Sorghum:														
\$/cwt.														
1982	3.80	3.70	3.78	3.97	4.09	4.42	4.67	4.92	5.05	5.05	5.03	5.29	4.41	4.32
1983	5.26	5.01	4.98	4.93	4.92	4.74	4.85	5.00	5.08	4.94	4.64	4.58	4.89	4.50
1984	4.24	4.05	4.05	4.15	4.16	4.10	4.24	4.46	4.54	4.52	4.04	3.74	4.15	4.32
1985	3.27	3.30	3.47	3.76	3.69	3.55	3.67	3.80	3.99	3.43	3.06	2.66	3.45	4.32
1986	2.36	2.34	2.39	2.41	2.37	2.36	2.44	2.58	2.69	2.79	2.66	2.52	2.45	3.25
1987	2.43	2.48	2.69	2.72	2.75	2.88	2.92	2.94	2.91	4.13	4.56	4.41	3.04	3.11
1988	4.26	4.16	3.99	4.07	4.09	4.05	4.04	4.21	4.03	3.90	4.00	3.81	4.05	3.00
1989	3.80	3.61	3.68	3.54	3.58	3.53	3.69	3.89	4.07	4.29	4.44	4.14	3.75	2.80
1990	3.96	3.55	3.57	3.67	3.72	3.87	3.93	4.05					3.75	1.49
Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 2/	May	Average 3/	Loan rate
Oats:														
\$/bu.														
1982	1.88	1.57	1.39	1.35	1.32	1.40	1.44	1.46	1.48	1.49	1.54	1.54	1.49	1.31
1983	1.51	1.46	1.45	1.55	1.62	1.67	1.73	1.81	1.88	1.81	1.82	1.84	1.62	1.36
1984	1.80	1.68	1.62	1.60	1.69	1.64	1.72	1.74	1.69	1.68	1.68	1.60	1.67	1.31
1985	1.59	1.31	1.16	1.10	1.08	1.17	1.20	1.18	1.16	1.14	1.13	1.21	1.23	1.31
1986	1.10	0.90	0.86	0.99	1.10	1.32	1.44	1.46	1.47	1.45	1.50	1.57	1.21	0.99
1987	1.52	1.29	1.40	1.49	1.61	1.62	1.76	1.79	1.84	1.78	1.82	1.84	1.56	0.94
1988	2.63	2.86	2.54	2.57	2.56	2.41	2.47	2.52	2.46	2.41	2.24	2.13	2.61	0.90
1989	1.82	1.53	1.47	1.38	1.47	1.48	1.53	1.47	1.43	1.39	1.44	1.45	1.49	0.85
1990	1.33	1.15	1.06	1.09	1.14	1.16	1.18	1.13	1.13	1.16	1.17		1.13	0.81
All barley:														
1982	2.39	2.16	2.20	2.17	1.98	2.06	2.19	2.16	2.00	2.09	2.22	2.36	2.18	2.08
1983	2.32	2.20	2.34	2.46	2.53	2.55	2.55	2.55	2.47	2.50	2.54	2.78	2.47	2.16
1984	2.61	2.54	2.26	2.25	2.29	2.25	2.19	2.24	2.21	2.18	2.16	2.22	2.29	2.08
1985	2.14	2.08	1.98	1.88	1.96	2.05	2.07	2.05	1.95	1.88	1.85	1.73	1.98	2.08
1986	1.57	1.67	1.51	1.45	1.58	1.69	1.62	1.60	1.63	1.69	1.69	1.76	1.61	1.56
1987	1.74	1.84	2.00	1.87	1.73	1.88	1.83	1.78	1.72	1.65	1.74	1.79	1.81	1.49
1988	2.45	2.97	2.96	2.94	2.86	2.96	2.73	2.74	2.67	2.74	2.73	2.64	2.80	1.44
1989	2.34	2.16	2.70	2.47	2.41	2.47	2.47	2.33	2.33	2.19	2.22	2.36	2.42	1.34
1990	2.29	2.16	2.13	2.13	2.04	2.16	2.13	2.13	2.13	2.15	2.12		2.13	1.28
Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 2/	May		
Feed barley:														
\$/bu.														
1982	2.52	2.23	1.98	1.91	1.87	1.94	1.98	2.07	1.99	2.08	2.26	2.43		
1983	2.52	2.31	2.23	2.41	2.45	2.51	2.52	2.58	2.47	2.54	2.55	2.86		
1984	2.72	2.60	2.10	2.13	2.19	2.19	2.20	2.22	2.27	2.19	2.16	2.30		
1985	2.26	2.05	1.75	1.74	1.85	1.90	2.03	2.00	1.90	1.83	1.85	1.81		
1986	1.61	1.44	1.21	1.33	1.49	1.62	1.59	1.56	1.61	1.69	1.71	1.84		
1987	1.79	1.67	1.54	1.57	1.66	1.68	1.63	1.65	1.64	1.59	1.73	1.76		
1988	2.07	2.34	2.37	2.39	2.34	2.30	2.27	2.28	2.29	2.35	2.32	2.27		
1989	2.18	1.96	2.06	1.98	1.97	2.08	2.10	2.02	2.01	1.99	2.08	2.28		
1990	2.26	2.04	1.77	1.85	1.91	1.95	1.89	2.01	1.93	1.95	1.95			
Malting barley:														
1982	2.26	2.10	2.38	2.58	2.22	2.26	2.39	2.32	2.00	2.09	2.13	2.18		
1983	2.05	2.06	2.50	2.69	2.72	2.61	2.61	2.50	2.47	2.46	2.54	2.53		
1984	2.52	2.48	2.50	2.52	2.52	2.39	2.18	2.29	2.11	2.17	2.17	2.10		
1985	2.02	2.13	2.49	2.33	2.24	2.32	2.19	2.13	1.99	1.93	1.85	1.66		
1986	1.52	2.07	2.23	1.85	1.83	1.78	1.65	1.70	1.69	1.69	1.65	1.66		
1987	1.68	2.04	2.55	2.39	1.88	2.07	2.01	2.15	1.80	1.69	1.75	1.81		
1988	2.80	3.26	3.38	3.47	3.41	3.34	3.27	3.32	3.22	3.22	3.16	3.04		
1989	2.62	2.68	3.04	2.87	2.89	2.91	2.88	2.73	2.61	2.45	2.51	2.53		
1990	2.35	2.37	2.47	2.42	2.29	2.34	2.44	2.23	2.35	2.39	2.36			

1/ Prices do not include an allowance for loans outstanding and government purchases. 2/ April 1991 data is preliminary. 3/ U.S. season-average prices based on monthly prices weighted by monthly marketings.

Source: Agricultural Prices, Agricultural Statistics Board, USDA.

Appendix table 12--Cash prices at principal markets, 1985-90

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
\$/bu.													
Corn, no. 2 yellow, Central Illinois:													
1985	2.28	2.10	2.32	2.36	2.36	2.33	2.29	2.31	2.42	2.41	1.93	1.52	2.22
1986	1.34	1.34	1.55	1.52	1.44	1.38	1.46	1.56	1.75	1.74	1.60	1.46	1.51
1987	1.52	1.65	1.74	1.78	1.85	1.89	1.92	1.97	1.97	2.59	2.90	2.73	2.04
1988	2.70	2.71	2.56	2.60	2.65	2.60	2.65	2.57	2.62	2.54	2.49	2.29	2.58
1989	2.33	2.26	2.30	2.29	2.30	2.37	2.42	2.64	2.73	2.77	2.68	2.54	2.47
1990	2.26	2.18	2.19	2.27	2.31	2.36	2.46	2.50					
Corn, no. 2 yellow, Gulf Ports:													
1985	2.59	2.50	2.69	2.75	2.72	2.63	2.56	2.57	2.68	2.63	2.12	1.85	2.52
1986	1.68	1.66	1.83	1.81	1.73	1.70	1.83	1.89	2.06	2.06	1.95	1.81	1.83
1987	1.86	1.99	2.08	2.11	2.20	2.23	2.29	2.28	2.29	3.05	3.22	3.02	2.39
1988	3.08	3.07	2.89	2.99	3.01	2.99	3.02	2.93	2.99	2.87	2.73	2.57	2.93
1989	2.62	2.99	2.75	2.76	2.69	2.70	2.72	3.01	3.08	3.05	2.92	2.79	2.84
1990	2.59	2.55	2.54	2.60	2.68	2.70	2.77	2.80					
Corn, no. 2 yellow, St. Louis:													
1985	2.38	2.27	2.50	2.59	2.55	2.50	2.42	2.46	2.56	2.52	2.01	1.67	2.37
1986	1.47	1.46	1.68	1.69	1.61	1.57	1.65	1.74	1.93	1.92	1.79	1.65	1.68
1987	1.65	1.78	1.91	1.97	2.05	2.07	2.09	2.10	2.13	2.77	2.96	2.81	2.19
1988	2.82	2.82	2.70	2.76	2.81	2.79	2.82	2.76	2.83	2.58	2.57	2.38	2.72
1989	2.38	2.44	2.48	2.44	2.45	2.48	2.57	2.77	2.86	2.85	2.75	2.59	2.59
1990	2.37	2.32	2.33	2.41	2.46	2.50	2.58	2.61					
Sorghum, no.2 yellow, Gulf Ports 1/:													
1985	3.70	3.97	4.34	4.52	4.45	4.30	4.28	4.50	4.80	3.90	3.37	2.71	4.07
1986	2.95	3.15	3.26	3.15	3.05	3.09	3.35	3.30	3.51	3.50	3.30	3.04	3.22
1987	3.13	3.35	3.55	3.50	3.65	3.80	3.86	3.70	3.73	5.00	5.33	4.93	3.96
1988	4.99	4.91	4.64	4.93	4.99	4.99	5.02	4.89	5.05	4.75	4.02	4.53	4.81
1989	4.67	4.61	4.69	4.70	4.62	4.59	4.70	4.97	5.04	4.87	4.95	4.73	4.76
1990	4.48	4.43	4.43	4.60	4.76	4.82	4.97	4.94					
\$/cwt													
Sorghum, no. 2 yellow, Kansas City:													
1985	3.56	3.62	3.75	3.97	3.95	3.80	3.82	4.00	4.25	4.00	3.20	2.71	3.72
1986	2.47	2.60	2.70	2.62	2.50	2.57	2.80	2.85	3.10	3.20	2.80	2.55	2.73
1987	2.64	2.75	2.90	2.95	3.05	3.24	3.27	3.16	3.21	4.58	4.79	4.28	3.40
1988	4.27	4.17	4.00	4.23	4.24	4.26	4.32	4.17	4.29	4.15	3.96	3.92	4.17
1989	4.73	3.91	4.00	3.98	4.00	3.84	4.01	4.32	4.47	4.54	4.48	4.27	4.21
1990	3.89	3.79	3.85	3.97	4.12	4.21	4.35	4.34					
Sorghum, no. 2 yellow, Texas High Plains: 2/													
1985	4.19	4.38	4.30	4.49	4.47	4.36	4.33	4.48	4.77	4.84	3.93	3.36	4.32
1986	3.35	3.24	2.97	3.06	2.94	2.89	3.06	3.32	3.56	3.60	3.58	3.30	3.24
1987	3.19	3.27	3.27	3.39	3.40	3.53	3.56	3.54	3.55	4.84	5.25	4.96	3.81
1988	4.98	4.95	4.62	4.63	4.75	4.69	4.72	4.63	4.50	4.59	4.46	4.44	4.66
1989	4.39	4.13	4.06	4.03	4.04	4.02	4.10	4.38	4.96	4.94	4.82	4.63	4.38
1990	4.27	4.17	4.28	4.49	4.49	4.57	4.69	4.66					
Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
\$/bu.													
Barley, no. 3 or better malting, 65% or better plump, Minneapolis:													
1985	2.46	2.25	2.03	2.15	2.10	2.27	2.29	2.28	2.20	2.34	2.40	2.07	2.24
1986	1.84	1.75	1.61	1.76	1.93	2.02	1.88	1.81	1.92	2.01	2.05	2.12	1.89
1987	2.07	1.93	1.73	1.98	2.08	2.05	2.01	2.02	2.15	2.08	2.11	2.24	2.04
1988	3.61	3.87	4.25	4.40	4.39	4.14	3.82	4.14	4.19	4.33	4.29	3.84	4.11
1989	3.02	3.33	3.57	3.43	3.48	3.18	3.19	3.20	3.02	2.83	2.97	3.17	3.20
1990	2.92	2.36	2.35	2.32	2.30	2.40	2.31	2.33	2.38	2.46	2.48		
Barley, no. 2 feed, Minneapolis 3/, 4/:													
1985	1.90	1.66	1.46	1.40	1.41	1.49	1.60	1.57	NQ	NQ	NQ	1.31	1.53
1986	1.23	1.16	1.13	1.27	1.50	1.63	1.23	NQ	NQ	1.64	1.76	1.86	1.44
1987	1.73	1.59	1.60	1.76	1.78	1.82	1.74	1.72	1.77	1.88	1.94	1.98	1.78
1988	2.41	2.38	2.08	2.24	2.32	2.27	2.14	2.24	2.33	2.49	2.52	2.41	2.32
1989	2.12	2.11	2.17	2.13	2.16	2.15	2.23	2.28	2.20	2.27	2.27	2.33	2.20
1990	2.39	2.17	1.99	2.01	2.11	2.16	2.07	2.09	2.15	2.14	2.12		
Oats, no. 2 heavy white, Minneapolis:													
1985	1.59	1.44	1.23	1.24	1.19	1.32	1.39	1.37	1.30	1.27	1.16	1.22	1.31
1986	1.18	1.05	1.12	1.29	1.39	1.72	1.66	1.64	1.56	1.46	1.59	1.83	1.46
1987	1.64	1.61	1.77	1.85	1.97	2.05	2.02	2.10	2.06	1.93	1.94	2.12	1.92
1988	3.26	3.25	3.09	3.07	2.99	2.71	2.74	2.87	2.59	2.49	2.30	2.22	2.80
1989	1.97	1.72	1.59	1.58	1.61	1.68	1.70	1.56	1.40	1.57	1.63	1.68	1.64
1990	1.52	1.37	1.25	1.23	1.29	1.30	1.24	1.22	1.18	1.27	1.32		

NQ = No quotes.

1/ Rail delivered to Texas Gulf. 2/ Reporting point changed from Texas High Plains to South Panhandle starting January 1991. 3/ Prior to June 1977 reported as barley, no. 3 or better. 4/ Reporting point changed from Minneapolis #2 feed to Duluth #2 feed beginning March 1987.

Source: Grain and Feed Market News, Agricultural Marketing Service, USDA.

Appendix table 13--Feed-price ratios for livestock, poultry, and milk, by months, 1982-90

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 1/	May	June	July	Aug.	Average
Hog/corn, U.S. basis 2/:													
1982	28.50	28.20	24.60	23.70	23.40	21.90	18.60	15.90	15.10	14.40	13.90	13.90	20.17
1983	13.30	12.80	11.80	14.00	15.40	14.60	14.30	14.30	14.10	14.60	15.80	16.20	14.27
1984	16.00	16.50	18.40	19.00	18.20	18.40	16.30	15.30	15.40	16.90	17.60	17.40	17.12
1985	17.30	20.40	19.50	19.80	19.00	18.40	17.60	17.30	19.20	22.70	29.50	35.90	21.38
1986	40.20	37.90	35.90	33.70	31.90	33.90	32.20	33.40	32.80	35.00	37.30	39.90	35.34
1987	36.40	31.50	25.20	23.40	24.30	25.00	22.70	22.30	23.90	19.50	16.20	16.90	23.94
1988	15.70	15.00	14.40	15.70	15.70	15.60	15.10	14.40	16.10	17.90	18.60	20.10	16.19
1989	19.00	21.00	20.10	21.20	20.50	20.80	21.60	21.40	23.40	22.90	23.20	22.30	21.45
1990	23.40	25.90	23.10	21.50	22.00	22.50	21.50	20.70					
Beef-steer/corn, Omaha 3/:													
1982	27.50	27.70	25.10	25.20	24.50	23.40	22.70	21.90	21.80	21.20	19.60	18.10	23.23
1983	17.80	18.40	18.30	19.80	21.60	22.10	21.10	20.40	19.70	19.10	20.40	20.70	19.95
1984	21.30	22.40	24.60	25.60	24.80	24.10	22.20	21.50	21.50	21.00	20.40	21.70	22.59
1985	21.80	25.70	27.80	26.70	25.60	24.40	24.00	22.90	23.00	22.30	28.90	36.70	25.82
1986	42.10	42.70	39.70	38.80	40.80	43.90	41.90	42.20	40.20	38.90	41.40	43.90	41.38
1987	42.10	41.40	38.40	36.70	36.40	37.40	38.20	39.40	38.60	29.50	24.40	26.10	35.72
1988	26.40	26.40	28.40	27.90	28.10	28.70	29.40	30.20	29.30	29.10	29.60	32.00	28.79
1989	30.80	31.10	32.20	32.80	34.20	34.00	32.60	31.10	29.30	27.90	28.50	30.90	31.28
1990	34.50	36.50	37.30	36.50	35.30	34.30	34.00	32.80					
Milk/feed, U.S. basis 4/:													
1982	1.57	1.61	1.62	1.60	1.59	1.56	1.55	1.49	1.45	1.43	1.45	1.41	1.53
1983	1.36	1.39	1.36	1.34	1.33	1.33	1.34	1.32	1.32	1.32	1.35	1.40	1.35
1984	1.48	1.56	1.62	1.59	1.57	1.57	1.55	1.51	1.47	1.45	1.44	1.47	1.52
1985	1.51	1.56	1.55	1.53	1.48	1.50	1.48	1.48	1.46	1.45	1.51	1.55	1.51
1986	1.61	1.75	1.77	1.77	1.73	1.69	1.63	1.61	1.57	1.57	1.56	1.58	1.65
1987	1.64	1.65	1.65	1.63	1.51	1.47	1.43	1.40	1.37	1.36	1.15	1.19	1.45
1988	1.26	1.32	1.36	1.38	1.38	1.35	1.30	1.29	1.28	1.29	1.37	1.43	1.33
1989	1.52	1.63	1.71	1.76	1.69	1.55	1.47	1.48	1.49	1.52	1.56	1.58	1.58
1990	1.57	1.46	1.41	1.31	1.31	1.31	1.27	1.27					
Egg/feed, U.S. basis 5/:													
1982	6.00	6.30	6.30	6.00	5.70	5.80	6.10	5.80	6.00	5.80	5.70	6.10	5.97
1983	6.00	6.20	6.90	7.70	8.80	8.50	7.40	8.50	6.50	5.80	5.80	5.80	6.99
1984	5.90	5.70	6.50	6.30	5.50	5.60	6.30	5.70	5.50	5.90	5.90	6.50	5.94
1985	7.10	7.30	7.50	7.40	7.20	6.90	7.60	6.40	6.40	5.90	6.90	7.30	6.98
1986	7.30	7.00	8.00	7.80	7.30	7.10	6.60	6.60	5.90	6.00	5.70	5.60	6.74
1987	6.50	6.00	6.40	5.70	5.60	5.30	5.60	5.20	5.00	5.30	4.90	4.90	5.53
1988	5.40	5.30	5.40	5.40	6.00	5.80	7.40	6.30	5.90	6.10	6.20	6.90	6.01
1989	6.80	7.20	7.90	8.30	8.40	7.10	8.00	7.30	5.20	5.60	5.40	6.40	6.97
1990	6.70	7.40	7.30	7.70	8.00	6.80	8.10	6.70					
Broiler/feed, U.S. basis 6/:													
1982	2.60	2.50	2.50	2.50	2.60	2.70	2.40	2.30	2.40	2.60	2.80	2.80	2.56
1983	2.70	2.50	2.80	2.90	3.10	3.10	3.10	2.70	2.70	2.70	3.00	2.70	2.83
1984	2.80	2.60	2.80	2.70	2.90	2.90	2.80	2.80	3.10	3.20	3.10	3.10	2.90
1985	3.20	3.10	3.50	3.20	3.20	3.10	3.10	3.10	3.40	3.80	4.50	4.60	3.48
1986	3.80	4.40	3.90	3.40	3.60	3.50	3.30	3.20	3.30	3.00	2.90	3.30	3.47
1987	2.90	2.60	2.70	2.50	2.80	2.70	2.80	3.10	3.70	4.10	3.40	3.40	3.06
1988	3.20	2.80	2.70	2.80	2.80	2.80	3.10	3.30	3.70	3.50	3.30	3.00	3.08
1989	3.10	2.70	2.60	2.60	2.70	3.00	3.30	3.10	3.20	3.10	3.30	3.00	2.98
1990	3.20	2.80	2.70	2.70	2.90	2.80	2.90	2.90					
Turkey/feed, U.S. basis 7/:													
1982	3.80	3.90	3.90	3.00	2.90	2.90	2.90	2.70	2.90	3.00	2.80	2.80	3.13
1983	3.00	3.00	3.10	3.50	3.60	3.20	3.30	3.30	3.30	3.30	3.60	3.80	3.33
1984	3.90	4.40	5.00	5.50	4.70	3.80	3.70	3.70	3.70	3.90	4.20	4.50	4.25
1985	5.00	5.50	5.50	5.50	3.40	3.40	3.50	3.50	3.80	4.30	4.50	4.60	4.38
1986	4.70	4.90	4.80	4.00	3.30	3.40	3.40	3.50	3.40	3.30	3.10	3.00	3.73
1987	2.90	2.80	3.10	3.60	2.90	2.60	2.50	2.70	2.80	3.00	3.00	3.10	2.92
1988	3.40	3.60	3.60	2.90	2.70	3.00	3.10	3.40	3.50	3.50	3.30	3.30	3.28
1989	2.90	3.20	3.40	3.20	3.00	2.80	3.10	3.10	3.20	3.20	3.20	3.40	3.14
1990	3.40	3.60	3.60	3.00	2.90	2.90	3.20	3.10					

1/ April 1991 is preliminary. 2/ Bushels of corn equal in value to 100 pounds of hog, live weight. 3/ Based on price of choice beef-steers, 900-1100 pounds. 4/ Pounds of 16-percent mixed dairy feed equal in value to 1 pound whole milk. 5/ Pounds of laying feed equal in value to 1 dozen eggs. 6/ Pounds of broiler grower feed equal in value to 1 pound broiler, live weight. 7/ Pounds of turkey grower feed equal in value to 1 pound of turkey, live weight.

Sources: Agricultural Prices, Agricultural Statistics Board, USDA.
Livestock, Meat & Wool Market News, Agricultural Marketing Service, USDA.

Appendix table 14--Price trends, selected feeds, and corn products

Item	Unit	Sept.-Aug. 1989/90 1/	1990				1991			
			Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Wholesale, mostly bulk 2/:										
Soybean meal, 44% solvent, Decatur	\$/ton	177.10	176.99	172.50	163.00	164.80	155.70	163.60	165.75	171.50
Soybean meal, high protein, Decatur	"	190.22	190.00	185.40	174.25	175.90	167.00	174.50	177.60	182.50
Cottonseed meal, 41% solvent, Memphis	"	164.25	178.75	163.00	147.50	141.25	125.00	118.10	125.00	122.50
Linseed meal, 34% solvent, Minneapolis	"	132.81	116.25	133.00	143.75	133.50	131.00	131.25	120.00	121.00
Meat and bone meal, Kansas City	"	207.29	200.50	209.20	211.25	209.40	198.50	191.25	205.60	205.00
Fishmeal, 67% protein, East Coast	"	358.39	333.30	364.00	363.13	316.90	NQ	356.25	351.90	329.50
Corn gluten feed, Illinois pts.	"	100.81	83.50	92.60	94.25	98.40	114.20	103.75	114.25	101.70
Corn gluten meal, 60% protein, Illinois pts.	"	256.57	229.40	232.00	231.90	240.60	247.00	239.40	247.50	236.70
Brewers' dried grains, Milwaukee	"	97.05	93.10	101.00	115.00	116.90	115.00	115.00	82.50	80.50
Distillers' dried grains, Lawrenceburg, Indiana	"	124.35	122.25	124.20	129.50	133.50	134.80	136.25	138.00	134.00
Feather meal, Arkansas pts.	"	210.01	186.25	202.00	223.75	227.00	207.50	167.50	204.50	206.00
Wheat bran, Kansas City	"	80.64	73.60	79.30	78.75	70.60	79.10	69.40	70.40	56.30
Wheat middlings, Kansas City	"	80.64	73.60	79.00	78.75	70.63	79.10	69.40	70.40	56.30
Rice bran, f.o.b. mills, Arkansas	"	70.83	64.40	63.10	56.90	66.50	75.20	57.75	62.60	66.40
Hominy feed, Illinois pts.	"	89.00	90.00	85.70	85.00	84.50	85.50	83.00	82.50	82.10
Alfalfa meal, dehydrated, Kansas City	"	127.00	110.00	110.00	111.25	112.00	112.00	112.00	111.25	112.20
Cane molasses, New Orleans	"	55.05	70.60	72.25	71.25	67.50	67.50	67.50	67.50	67.50
Molasses beet pulp, Los Angeles	"	118.36	119.50	121.00	122.00	122.00	125.00	125.00	120.00	112.90
Animal fat, Kansas City	c/lb.	10.94	9.90	10.50	10.70	11.50	11.60	11.20	10.60	10.50
Urea, 42% nitrogen, Forth Worth	\$/ton	197.89	202.00	208.50	198.50	185.00	185.00	185.00	187.00	185.00
Corn, no. 2 white, Kansas City	\$/bu.	2.99	2.98	2.85	2.86	2.91	2.95	2.95	2.95	2.96
Prices paid, U.S. basis 3/ 4/:										
Soybean meal, 44%	\$/cwt	13.53	---	13.10	---	---	12.50	---	---	12.70
Cottonseed meal, 41%	"	14.85	---	14.90	---	---	14.60	---	---	14.00
Wheat bran	"	10.83	---	10.70	---	---	10.70	---	---	10.80
Wheat middlings	"	9.51	---	9.35	---	---	9.35	---	---	9.39
Broiler grower feed	\$/ton	221.25	---	210.00	---	---	211.00	---	---	209.00
Laying feed	"	200.00	---	199.00	---	---	198.00	---	---	195.00
Turkey grower feed	"	240.25	---	237.00	---	---	235.00	---	---	237.00
Chick starter	"	228.50	---	215.00	---	---	217.00	---	---	222.00
Dairy feed, 16%	"	182.50	---	181.00	---	---	179.00	---	---	178.00
Beef cattle concentrate, 32-36% protein 5/	"	256.25	---	251.00	---	---	249.00	---	---	249.00
Hog concentrate, 38-42% protein 5/	"	309.25	---	302.00	---	---	294.00	---	---	295.00
Stock salt 5/	50 lb	3.46	---	3.53	---	---	3.57	---	---	3.58
Corn products, wholesale 6/:										
Corn meal, yellow, New York	\$/cwt	13.40	13.40	13.53	13.54	13.50	13.51	13.62	13.62	13.69
Grits (brewers'), Chicago	"	10.21	10.01	10.02	10.02	9.96	9.97	10.05	10.09	10.18
Syrup, Midwest/West	c/lb.	11.39	12.01	10.44	10.44	10.44	10.44	10.44	11.36	12.73
Sugar (dextrose), Midwest	"	24.54	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50
High-fructose (dried weight in tank cars), Midwest	"	13.90	16.28	13.66	12.78	12.78	12.78	12.78	13.16	14.70
Corn starch, f.o.b. Midwest	\$/cwt	10.66	11.27	10.92	10.62	10.62	10.73	10.86	10.86	11.01

--- = Not applicable.

NQ = No quotes.

1/ Preliminary. 2/ Grain and Feed Market News, Agricultural Marketing Service, USDA, except urea which is from Feedstuffs, Miller Publishing Co., Minneapolis, Minnesota. 3/ Agricultural Prices, Agricultural Statistics Board, USDA. 4/ Prices paid data is available on a quarterly basis only. 5/ Prices previously published in cwt. 6/ Milling and Baking News, Kansas City, Missouri, except starch which is from industry sources.

Appendix table 15--Corn, sorghum, barley, and oats exports, 1988/89 to date 1/

Year and month	Corn		Sorghum	Year and month	Barley		Oats	
	Grain only	Total			Grain only	Total	Grain only	Total
	Bushels				Bushels			
1988/89:				1988/89:				
Sept.	150,843,842	151,736,284	26,656,522	June	12,108,210	12,402,962	102,245	258,289
Oct.	170,295,536	171,523,785	19,499,969	July	11,513,586	11,757,762	38,739	88,239
Nov.	149,632,839	151,030,488	18,319,440	Aug.	2,214,904	2,500,232	24,394	145,962
1st Qtr.	470,772,217	474,290,557	64,475,931	1st Qtr.	25,836,700	26,660,956	165,378	492,490
Dec.	172,492,326	173,546,904	27,975,619	Sept.	8,758,198	8,833,519	21,017	90,049
Jan.	175,221,513	176,487,573	32,501,841	Oct.	1,432,089	2,161,176	30,378	57,096
Feb.	154,909,994	158,177,973	33,002,703	Nov.	2,452,268	3,055,490	73,371	126,759
2nd Qtr.	502,623,833	508,212,450	93,480,163	2nd Qtr.	12,642,555	14,050,185	124,766	273,904
Mar.	202,840,169	206,563,860	30,648,140	Dec.	15,121,435	15,440,102	29,605	51,848
Apr.	177,475,933	180,898,856	28,248,011	Jan.	84,517	417,785	115,957	154,015
May	211,303,127	212,764,901	21,239,060	Feb.	81,490	439,958	65,245	112,585
3rd Qtr.	591,619,229	600,227,617	80,135,211	3rd Qtr.	15,287,442	16,297,845	210,807	318,448
June	223,487,607	225,359,132	24,105,107	Mar.	1,964,297	2,424,381	22,487	70,294
July	133,145,813	135,157,047	25,119,434	Apr.	13,817,421	14,373,832	27,765	69,774
Aug.	106,804,440	109,287,340	22,869,115	May	9,781,368	10,571,462	27,121	60,581
4th Qtr.	463,437,860	469,803,519	72,093,656	4th Qtr.	25,563,086	27,369,675	77,373	200,649
Total	2,028,453,139	2,052,534,142	310,184,961	Total	79,329,783	84,378,661	578,324	1,285,491
1989/90:				1989/90:				
Sept.	113,776,974	116,262,446	34,171,231	June	7,364,654	8,121,974	73,555	134,619
Oct.	175,531,175	178,434,620	33,729,330	July	9,666,205	10,690,552	99,550	154,363
Nov.	293,764,931	296,074,486	22,408,755	Aug.	9,513,210	9,987,091	56,400	181,747
1st Qtr.	583,073,080	590,771,552	90,309,316	1st Qtr.	26,544,069	28,799,617	229,505	470,729
Dec.	258,806,792	260,538,272	19,612,697	Sept.	8,060,139	9,274,483	137,368	245,862
Jan.	239,115,226	241,832,437	33,378,612	Oct.	4,634,063	5,354,195	86,668	183,582
Feb.	183,848,421	186,811,227	28,182,429	Nov.	4,520,961	5,397,789	46,922	103,742
2nd Qtr.	681,770,439	689,181,936	81,173,738	2nd Qtr.	17,215,163	20,026,467	270,958	533,186
Mar.	193,266,890	196,494,682	31,489,112	Dec.	9,910,349	10,568,654	55,999	83,079
Apr.	193,839,027	198,739,081	27,544,536	Jan.	6,037,587	6,879,444	59,397	93,083
May	214,184,922	216,778,666	22,232,389	Feb.	6,895,254	7,088,782	36,769	65,525
3rd Qtr.	601,290,839	612,012,429	81,266,037	3rd Qtr.	22,843,190	24,536,880	152,165	241,687
June	201,188,588	204,096,201	12,501,897	Mar.	566,367	800,696	66,607	102,001
July	147,757,179	150,908,438	14,517,610	Apr.	8,399,072	9,812,500	72,009	110,947
Aug.	153,686,452	157,627,664	23,760,673	May	8,907,697	9,086,501	32,389	63,663
4th Qtr.	502,632,219	512,632,303	50,780,180	4th Qtr.	17,873,136	19,699,697	171,005	276,611
Total	2,368,766,577	2,404,598,220	303,529,271	Total	84,475,558	93,062,661	823,633	1,522,213
1990/91:				1990/91:				
Sept.	106,371,404	109,121,558	18,212,586	June	11,117,511	11,513,895	97,249	1,570,662
Oct.	108,167,144	111,184,494	17,699,762	July	9,710,720	10,087,119	40,805	85,623
Nov.	168,266,952	171,556,193	20,675,429	Aug.	10,034,339	10,539,636	44,949	110,455
1st Qtr.	382,805,500	391,862,245	56,587,777	1st Qtr.	30,862,570	32,140,650	183,003	1,766,740
Dec.	142,014,881	144,250,941	17,623,359	Sept.	1,988,455	3,087,526	126,235	169,601
Jan.	145,445,877	149,685,134	16,917,475	Oct.	14,220,343	14,670,656	60,209	128,694
Feb.	183,208,638	188,165,991	26,675,128	Nov.	9,147,225	9,386,411	44,661	114,089
2nd Qtr.	470,669,396	482,102,066	61,215,962	2nd Qtr.	25,356,023	27,144,593	231,105	412,384
Mar.	188,981,321	192,970,486	29,896,631	Dec.	12,191,762	13,433,856	16,252	72,260
Apr.				Jan.	5,306,015	5,997,143	56,190	123,333
May				Feb.	1,139,882	1,508,113	21,875	87,282
3rd Qtr.				3rd Qtr.	18,637,659	20,939,112	94,317	282,875
June				Mar.	2,150,913	2,944,676	23,608	2,293,189
July				Apr.				
Aug.				May				
4th Qtr.				4th Qtr.				
Total				Total				

1/ Total corn exports include grain only (white, yellow, seed, relief), dry process (cornmeal for relief, as grain, grits), and wet process (corn starch, sugar dextrose, glucose, high fructose). Sorghum includes seed and unmilled. Barley includes grain only (grain for malting purposes, other) and barley malt. Oats include grain and oatmeal (bulk and packaged).

Source: Bureau of the Census, U.S. Department of Commerce.

Appendix table 16--Corn, sorghum, barley, and oats imports, 1988/89 to date 1/

Year and month	Corn		Sorghum	Year and month	Barley		Oats	
	Grain only	Total			Grain only	Total	Grain only	Total
	Bushels				Bushels			
1988/89:				1988/89:				
Sept.	148,437	177,913	0	June	1,596,106	1,700,185	5,680,015	5,772,502
Oct.	296,701	308,058	3,673	July	930,207	1,029,127	2,276,583	2,365,501
Nov.	180,789	233,514	0	Aug.	317,223	417,363	4,298,356	4,485,006
1st Qtr.	625,927	719,485	3,673	1st Qtr.	2,843,536	3,146,675	12,254,954	12,623,009
Dec.	106,151	173,241	0	Sept.	240,729	365,319	2,059,442	2,367,645
Jan.	307,023	723,699	0	Oct.	402,245	555,196	3,995,388	4,239,340
Feb.	178,260	591,385	15,130	Nov.	1,523,621	1,651,752	5,834,991	6,184,617
2nd Qtr.	591,434	1,488,325	15,130	2nd Qtr.	2,166,595	2,572,267	11,889,821	12,791,602
Mar.	420,381	742,935	0	Dec.	490,420	578,085	4,696,591	5,153,441
Apr.	633,060	845,387	5	Jan.	729,443	838,489	6,100,483	6,906,243
May	162,021	356,329	0	Feb.	1,627,551	1,720,819	9,313,487	10,172,629
3rd Qtr.	1,215,462	1,944,651	5	3rd Qtr.	2,847,414	3,137,393	20,110,561	22,232,313
June	33,363	212,637	14	Mar.	762,924	851,359	7,169,256	8,042,377
July	223,459	385,968	0	Apr.	753,742	857,654	4,750,564	5,431,135
Aug.	93,469	348,056	0	May	1,136,714	1,239,385	6,723,912	7,307,316
4th Qtr.	350,291	943,661	14	4th Qtr.	2,653,380	2,948,398	18,643,732	20,780,828
Total	2,783,114	5,096,122	18,822	Total	10,510,925	11,804,733	62,899,068	68,427,752
1989/90:				1989/90:				
Sept.	38,078	278,865	0	June	1,649,125	1,745,195	3,146,832	3,789,238
Oct.	307,119	553,242	0	July	571,185	661,468	6,440,929	6,730,677
Nov.	297,019	545,010	0	Aug.	1,356,499	1,456,086	7,372,277	7,823,880
1st Qtr.	642,216	1,377,117	0	1st Qtr.	3,576,809	3,862,749	16,960,038	18,343,795
Dec.	98,067	284,277	0	Sept.	263,515	360,996	5,871,691	6,236,194
Jan.	247,828	427,823	0	Oct.	204,334	283,661	4,460,867	4,779,170
Feb.	92,762	248,372	0	Nov.	1,517,596	1,674,049	7,146,334	7,452,067
2nd Qtr.	438,657	960,472	0	2nd Qtr.	1,985,445	2,318,706	17,478,892	18,467,431
Mar.	182,222	320,108	74,979	Dec.	1,078,994	1,235,670	6,581,569	6,720,624
Apr.	162,070	340,157	826	Jan.	823,485	951,218	4,913,651	5,106,850
May	275,032	540,454	42,236	Feb.	1,396,491	1,556,043	4,198,054	4,343,569
3rd Qtr.	619,324	1,200,719	118,041	3rd Qtr.	3,298,970	3,742,931	15,693,274	16,171,043
June	33,491	302,083	23,864	Mar.	1,412,309	1,513,346	3,990,713	4,076,976
July	135,597	409,747	75,398	Apr.	1,333,963	1,417,784	8,366,698	8,475,874
Aug.	32,720	259,866	8,410	May	1,468,205	1,585,804	3,318,193	3,416,974
4th Qtr.	201,808	971,696	107,672	4th Qtr.	4,214,477	4,516,934	15,675,604	15,969,824
Total	1,902,005	4,510,004	225,713	Total	13,075,701	14,441,320	65,807,808	68,952,093
1990/91:				1990/91:				
Sept.	29,118	260,345	5,551	June	603,614	691,947	6,675,422	6,766,369
Oct.	172,220	496,429	0	July	309,116	547,246	5,841,249	5,908,451
Nov.	683,773	920,527	60	Aug.	117,460	357,140	4,998,143	5,090,611
1st Qtr.	885,111	1,677,301	5,611	1st Qtr.	1,030,190	1,596,333	17,514,814	17,765,431
Dec.	90,489	263,269	0	Sept.	117,510	200,053	2,240,097	2,358,047
Jan.	100,811	305,895	0	Oct.	293,888	485,842	4,464,410	4,636,239
Feb.	83,751	264,812	0	Nov.	839,438	1,014,543	4,970,603	5,078,808
2nd Qtr.	275,051	833,976	0	2nd Qtr.	1,250,836	1,700,438	11,675,110	12,073,094
Mar.	80,937	251,187	60,462	Dec.	1,288,335	1,569,231	6,027,830	6,118,040
Apr.				Jan.	1,194,977	1,306,682	2,543,485	2,642,746
May				Feb.	1,723,635	1,836,340	9,675,744	9,822,449
3rd Qtr.				3rd Qtr.	4,206,947	4,712,253	18,247,059	18,583,235
June				Mar.	2,248,034	2,423,555	4,618,596	4,763,254
July				Apr.				
Aug.				May				
4th Qtr.				4th Qtr.				
Total				Total				

1/ Total includes in addition to grain, processed products of corn, barley and oats.

Source: Bureau of the Census, U.S. Department of Commerce.

Appendix table 17--Shipments of grain on the Illinois Waterway and the Mississ

Crop year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
1981/82	3.4	3.4	4.6	3.9	1.2	0.8
1982/83	4.1	3.2	4.2	3.2	2.7	2.3
1983/84	5.3	4.9	5.7	4.4	1.0	3.6
1984/85	3.1	4.6	5.5	3.1	2.0	0.9
1985/86	2.4	2.6	4.3	3.3	1.8	1.7
1986/87	3.2	3.1	5.2	2.4	1.2	1.7
1987/88	3.3	3.8	3.9	2.9	1.9	2.0
1988/89	3.3	3.3	3.9	3.5	1.7	1.5
1989/90	3.0	3.9	4.7	2.5	2.2	2.2
1990/91	3.6	3.4	4.8	2.1	1.6	2.0

Source: Mississippi River Barge Traffic, U.S. Army Corps of Engineers, Rock

Appendix table 18--Barge rates for grain shipments to New Orleans, Louisiana 1

Crop year	Origin	Sept.	Oct.	Nov.	Dec.	Jan.
1984/85	Peoria, IL	7.77	8.07	6.71	5.79	7.34
	St Louis, MO	5.94	5.92	5.15	3.98	4.36
1985/86	Peoria, IL	5.26	7.93	6.48	9.08	7.22
	St Louis, MO	4.32	6.42	4.80	5.35	4.39
1986/87	Peoria, IL	8.37	10.54	6.64	5.16	4.95
	St Louis, MO	6.52	7.52	5.06	3.62	3.28
1987/88	Peoria, IL	8.66	9.04	7.38	5.68	7.32
	St Louis, MO	6.58	6.97	5.73	4.29	4.39
1988/89	Peoria, IL	9.80	10.32	7.88	8.81	7.32
	St Louis, MO	7.91	8.35	5.94	6.11	5.19
1989/90	Peoria, IL	5.89	10.49	10.87	12.15	9.13
	St Louis, MO	4.64	7.90	6.84	7.05	5.23
1990/91	Peoria, IL	6.33	7.38	7.16	5.97	7.46
	St Louis, MO	4.76	5.57	5.62	4.21	4.89

1/ Assumes all traffic on the Illinois River originates at Peoria.

Source: Based on rates reported by Transportation Situation, Illinois Dept.

Mississippi River (Locks 11-22), 1981/82-1990/91

Feb.	Mar.	Apr.	May	June	July	Aug.	Average
Million tons							
0.8	2.1	4.1	3.8	4.4	3.9	5.0	3.4
2.3	3.8	3.3	3.9	4.2	4.2	4.8	3.6
3.6	4.5	5.3	4.4	3.7	3.4	3.3	4.1
0.9	3.1	4.1	3.1	3.2	3.4	3.0	3.3
1.7	2.9	3.4	3.6	3.2	2.5	3.3	2.9
1.7	3.6	3.8	4.0	3.8	2.8	3.5	3.2
2.0	3.0	4.2	4.3	3.6	2.7	3.3	3.2
1.5	2.6	3.5	4.3	4.1	3.9	3.4	3.3
2.2	3.5	4.5	5.2	4.5	5.0	4.0	3.8
2.0	3.1	4.0					3.1

Rock Island District.

ana 1/

Feb.	Mar.	Apr.	May	June	July	Aug.	Average
Dollars/ton							
4	6.87	5.73	5.08	4.33	4.76	4.83	5.99
6	4.20	3.88	3.79	3.29	3.39	3.34	4.24
2	5.64	4.28	4.13	3.90	3.70	3.70	5.63
9	3.87	3.18	3.14	2.97	2.99	2.96	4.08
5	5.23	6.96	5.88	5.44	6.16	6.15	6.50
8	3.52	5.27	4.54	3.77	4.30	4.37	4.73
2	6.89	8.16	7.25	6.19	9.86	9.79	7.82
9	4.59	6.13	5.47	4.65	7.56	6.81	5.80
2	7.26	7.08	5.85	5.34	6.13	4.92	7.15
9	5.31	5.40	4.18	3.72	4.44	3.68	5.35
3	7.32	6.43	7.70	6.43	5.47	4.56	7.65
3	5.07	4.92	5.64	4.82	3.99	3.22	5.27
6	6.45	5.09	5.28				6.39
9	4.20	3.91	3.88				4.63

Dept. of Agriculture.

Appendix table 19--Weekly average of rail car loadings of grain and soybeans

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
						Carl
1979/80	28,576	32,118	32,558	30,500	30,504	31,025
1980/81	32,127	24,114	31,450	28,106	34,396	31,108
1981/82	25,607	25,609	27,419	22,384	22,967	27,220
1982/83	20,321	29,523	25,350	21,888	24,700	26,318
1983/84	29,735	31,414	29,515	25,927	31,068	29,105
1984/85	29,162	24,482	28,587	25,441	25,310	23,688
1985/86	18,889	26,227	28,214	23,482	25,424	22,558
1986/87	27,329	33,605	29,877	24,827	23,086	26,663
1987/88	32,977	32,820	29,947	29,225	32,223	34,224
1988/89	29,014	30,628	27,140	27,120	30,324	30,583
1989/90	24,437	28,950	31,701	29,411	32,250	32,605
1990/91	23,984	27,135	27,243	24,359	26,525	28,570

Source: Association of American Railroads.

Appendix table 20--Rail freight rate index for grain, crop years 1979/80-1990

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
						Decem
1979/80	64.2	69.5	69.6	70.2	70.2	71.4
1980/81	78.3	78.8	78.8	79.2	83.1	84.1
1981/82	88.5	89.4	89.4	89.4	93.6	93.6
1982/83	93.0	93.0	93.0	93.0	93.9	93.9
1983/84	93.9	94.2	94.2	94.2	98.0	98.0
1984/85	98.4	100.0	100.0	100.0	100.0	100.0
1985/86	98.0	98.0	98.0	98.0	98.9	99.0
1986/87	99.2	98.5	98.5	97.8	98.3	98.3
1987/88	98.9	99.2	99.1	98.5	101.2	101.2
1988/89	109.3	108.3	108.5	108.2	109.2	109.2
1989/90	108.4	108.6	108.7	108.7	109.1	109.1
1990/91	110.6	111.3	111.3	111.3	111.1	111.0

Source: Bureau of Labor Statistics, U.S. Department of Labor.

beans, 1979/80-1990/91

Feb.	Mar.	Apr.	May	June	July	Aug.	Average
Carloads							
025 108	30,170 27,657	26,546 23,490	23,606 21,291	28,333 28,014	32,584 22,162	32,921 26,152	29,953 27,506
220 318	26,813 26,807	25,798 21,243	23,755 20,849	22,540 21,393	27,020 27,942	25,123 27,461	25,188 24,483
105 688	27,666 23,340	26,784 20,164	23,616 17,715	24,335 24,724	26,632 22,662	29,848 20,218	27,970 23,791
558 663	20,648 27,134	17,743 25,046	17,673 26,189	24,907 32,154	24,426 32,257	24,342 30,825	22,878 28,249
224 583	34,241 31,436	32,963 30,181	30,861 25,943	33,316 27,253	29,678 25,095	27,010 25,990	31,624 28,392
605 570	29,648 28,085	27,938 24,927	25,775	27,945	25,609	26,798	28,589 26,354

-1990/91

Feb.	Mar.	Apr.	May	June	July	Aug.	Average
December 1984=100							
71.4 84.1	70.5 85.0	72.7 84.8	72.8 84.8	73.3 85.7	76.6 88.0	76.9 88.5	71.5 83.3
93.6 93.9	93.6 93.9	93.6 93.9	93.6 93.9	93.6 93.9	93.6 93.9	93.6 93.9	92.1 93.6
98.0 00.0	98.0 99.3	98.0 99.3	98.0 98.7	98.0 97.3	98.4 96.4	98.4 96.3	96.8 98.8
99.0 98.3	99.0 98.8	99.1 98.6	99.2 98.5	99.2 98.6	99.2 98.6	99.2 98.5	98.7 98.5
101.2 09.2	101.4 108.8	102.7 108.8	104.1 108.8	104.3 108.0	106.4 108.4	109.3 108.4	102.2 108.7
09.1 11.0	109.1 111.8	109.7 112.0	109.7	109.2	109.7	110.5	109.1 111.3

Appendix table 21--Hay (all): Acreage, supply, and disappearance, 1984/85-1991/92

Item	Unit	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92
Acreage harvested	Mil. acres	61.4	60.4	62.4	60.1	65.1	63.3	61.6	61.4
Yield per acre	Tons	2.45	2.46	2.49	2.45	1.94	2.30	2.39	2.41
Carryover (May 1)	Mil. tons	20.1	26.9	26.7	32.3	27.1	17.5	27.1	27.1
Production	"	150.6	148.6	155.5	147.5	126.0	145.5	147.0	148.0
Supply	"	170.7	175.5	182.2	179.8	153.1	163.0	174.1	175.1
Disappearance	"	143.8	148.8	149.9	152.7	135.6	135.9	147.0	
Roughage-consuming animal units (RCAU's)	Mil. units	83.2	80.5	78.3	76.3	75.5	75.5	75.8	
Supply per RCAU	Tons	2.05	2.18	2.33	2.36	2.03	2.16	2.30	
Disappearance per RCAU	"	1.73	1.85	1.91	2.00	1.80	1.80	1.94	

Appendix table 22--Hay: Average prices received by farmers, United States by months, 1983/84-1990/91 1/

Year	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 2/	Average 3/
\$/ton													
Alfalfa:													
1983/84	83.80	78.30	77.40	77.40	79.10	82.40	80.10	81.70	82.00	85.10	84.40	84.30	81.33
1984/85	87.10	80.10	75.60	72.80	73.90	76.70	74.30	77.50	76.20	76.40	75.80	76.70	76.93
1985/86	85.50	74.90	72.50	68.10	70.70	70.50	67.70	69.10	70.20	71.30	72.00	69.80	71.86
1986/87	69.50	64.10	61.40	60.10	58.80	59.90	57.90	60.70	58.80	61.10	62.80	67.90	61.92
1987/88	77.70	67.40	65.70	64.60	69.30	68.00	64.60	68.80	66.50	69.60	72.50	76.90	69.31
1988/89	85.50	82.70	88.10	86.70	89.40	92.00	92.80	96.40	98.30	101.00	106.00	107.00	93.83
1989/90	107.00	99.80	90.60	87.70	90.70	92.20	91.70	91.70	93.30	95.20	96.70	103.00	93.80
1990/91	108.00	95.30	91.70	89.30	91.60	92.70	86.60	85.50	88.10	87.30	90.40	93.40	89.20
Other hay:													
1983/84	58.90	56.10	54.30	52.90	57.80	59.50	62.10	64.30	63.30	63.80	64.90	66.50	60.37
1984/85	64.90	63.40	61.80	60.90	62.40	62.00	62.60	64.80	64.70	61.70	58.40	62.40	62.50
1985/86	58.70	54.00	57.00	58.40	58.60	58.20	55.30	56.00	56.10	56.00	54.80	54.90	56.50
1986/87	54.00	50.90	50.00	51.00	52.70	50.00	49.70	49.40	48.10	50.90	48.30	48.20	50.27
1987/88	51.00	49.60	50.00	52.20	52.40	53.00	53.60	53.30	52.20	51.50	51.70	51.90	52.09
1988/89	57.50	61.60	66.60	68.70	70.60	69.80	72.30	72.50	70.00	72.10	73.60	76.70	70.03
1989/90	78.30	67.50	63.70	63.50	65.90	62.40	62.60	63.30	64.00	62.50	63.70	65.10	65.50
1990/91	67.80	62.90	64.40	65.30	66.50	65.30	65.40	62.90	63.70	60.80	60.80	61.50	65.10
All hay:													
1983/84	78.10	72.70	71.20	71.20	74.70	76.80	75.10	76.70	76.60	78.70	79.40	79.80	75.80
1984/85	82.50	76.10	72.40	70.40	70.70	73.10	71.40	73.40	73.00	73.10	72.20	72.50	72.70
1985/86	80.80	70.20	67.90	65.20	67.10	67.50	64.30	65.40	65.80	66.70	67.10	66.20	67.60
1986/87	66.70	61.00	58.80	58.20	57.60	57.90	56.00	57.70	56.10	58.50	59.20	64.10	59.70
1987/88	71.70	62.90	61.20	62.70	64.10	64.20	61.10	63.20	62.80	64.60	67.20	71.40	65.10
1988/89	81.10	77.40	82.30	82.10	85.10	86.80	87.60	89.60	89.50	91.80	96.90	101.00	85.20
1989/90	103.00	93.30	84.40	81.90	84.70	85.10	83.60	83.10	84.90	85.70	87.50	95.00	85.40
1990/91	99.90	86.70	83.60	83.40	86.20	85.60	81.40	79.50	82.00	80.40	84.50	88.60	83.20

1/ Prices reported for mid-month. 2/ Preliminary. 3/ U.S. season average prices weighted by monthly marketings.

Source: Agricultural Prices, Agricultural Statistics Board, USDA.

Appendix table 23--Processed feeds: Quantity fed, 1982-90 1/ 2/

	1982	1983	1984
High protein:			
Oilseed meal--			
Soybean 4/	17,514	15,980	17,672
Cottonseed	1,495	1,022	1,595
Linseed	84	113	109
Peanut	67	68	112
Sunflower	433	240	307
Canola	53	99	145
Total	19,647	17,522	19,940
Animal proteins--			
Tankage and meat meal	2,133	2,102	2,523
Fishmeal and solubles	412	453	589
Milk products	361	368	386
Total	2,906	2,923	3,498
Grain protein feeds--			
Gluten feed and meal	757	1,281	1,876
Brewers' dried grains	195	135	142
Distillers' dried grains	682	564	807
Total	1,634	1,980	2,825
Other:			
Wheat millfeeds	5,139	5,078	5,084
Rice millfeeds	434	461	456
Dried and molasses beetpulp	519	536	728
Alfalfa meal	887	898	808
Fats and oils	659	670	672
Molasses, inedible	2322	2070	2407
Miscellaneous byproduct feeds 5/	1,270	1,267	1,267
Total	11,230	10,980	11,422
Grand total	35,417	33,405	37,685

NA = Not available.

1/ Year beginning October. 2/ Adjusted for stocks, productions, foreign trade.

4/ Includes use in edible soy products and shipments to U.S. territories. 5/

1985	1986	1987	1988	1989	1990 3/
---- 1,000 metric tons ----					
17,318	18,495	19,317	17,833	20,464	20,593
1,379	1,026	1,442	1,481	1,239	1,447
100	115	127	93	126	111
159	103	109	147	113	123
313	269	381	306	269	325
121	206	206	279	249	255
19,389	20,214	21,582	20,138	22,461	22,854
2,540	2,395	2,457	2,328	2,320	2,295
464	471	353	265	314	315
374	398	412	407	400	390
3,377	3,265	3,221	3,001	3,034	3,000
1,055	1,165	1,484	1,289	441	400
135	146	120	114	125	NA
873	805	1,035	830	850	NA
2,063	2,116	2,639	2,233	1,416	NA
5,278	5,714	5,652	5,553	5,577	5,715
503	610	551	615	569	569
701	645	699	660	744	820
777	589	554	365	300	400
765	832	826	944	972	1,040
1887	1771	1598	1593	1988	1,690
1,267	1,267	1,267	1,267	1,267	1,267
11,178	11,429	11,147	10,997	11,417	11,501
36,007	37,024	38,589	36,369	38,328	NA

n trade, and nonfeed uses where applicable. 3/ Forecast.
5/ Allowance for hominy feed, oat millfeeds, and screenings.

LIST OF TABLES

Table	Page
1. Corn supply, disappearance, and stocks, December-February	5
2. Corn: Food, seed, and industrial use.	13
3. World coarse grain trade: Major exporters and importers by commodity, 1987/88-1991/92	21
 Appendix	
1. Feed grains: Marketing year supply and disappearance, 1984/85-1991/92	31
2. Foreign coarse grains: Supply and disappearance, 1980/81-1991/92	32
3. Corn: Marketing year supply and disappearance, area, and prices, 1984/85-1991/92	33
4. Sorghum: Marketing year supply and disappearance, area and prices, 1984/85-1991/92	34
5. Barley: Marketing year supply and disappearance, area, and prices, 1984/85-1991/92	35
6. Oats: Marketing year supply and disappearance, area, and prices, 1984/85-1991/92	36
7. Corn: Marketing year supply and disappearance, specified periods, 1985/86-1990/91	37
8. Sorghum: Marketing year supply and disappearance, specified periods, 1985/86-1990/91	38
9. Barley: Marketing year supply and disappearance, specified periods, 1985/86-1990/91	39
10. Oats: Marketing year supply and disappearance, specified periods, 1985/86-1990/91	40
11. Average prices received by farmers, United States, by month, and loan rate, 1982-90	41
12. Cash prices at principal markets, 1985-1990	42
13. Feed-price ratios for livestock, poultry, and milk, by months, 1982-1990	43
14. Price trends, selected feeds, and corn products	44
15. Corn, sorghum, barley, and oats exports, 1988/89 to date	45
16. Corn, sorghum, barley, and oats imports, 1988/89 to date	46
17. Shipments of grain on the Illinois Waterway and the Mississippi River (Locks 11-22), 1981/82-1990/91	47
18. Barge rates for grain shipments to New Orleans, Louisiana	47
19. Weekly average of rail car loadings of grain and soybeans, 1979/80-1990/91	48
20. Rail freight rate index for grain, crop years 1979/80-1990/91	48
21. Hay (all): Acreage, supply, and disappearance, 1984/85-1990/91	49
22. Hay: Average prices received by farmers, United States, by months, 1983/84-1990/91	49
23. Processed feeds: Quantity fed, 1982-1990	50

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